DOCUMENT RESUME

ED 061 043 SE 013 266

AUTHOR	Allen, Jack; Wolmut, Peter
TITLE	Development and Evaluation of Course Goals in Science and Language Arts for Grades K-12. Final Report.
INSTITUTION	Multnomah County Intermediate Education District, Portland, Oreg.
SPONS AGENCY	National Center for Educational Research and Development (DHEW/OE), Washington, D.C.
BUREAU NO	BR-1-J-035
PUB DATE	15 Jan 72
CONTRACT	OEC-X-71-0026(057)
NOTE	671p.
EDRS PRICE	MF-$0.65 HC-$23.03
DESCRIPTORS	Elementary Grades; Evaluation; *Language Arts; *Objectives; *Resource Materials; *Science Instruction; Secondary Grades; Technical Reports
IDENTIFIERS	Portland

ABSTRACT

Program goals, intended outcomes of a complete area of instruction, course goals, and desired outcomes of specific courses or instructional units are discussed in the general introduction to the collection of program and course goals for science and language arts prepared for the use of teachers in grades K-12 in the Portland, Oregon, Metropolitan Schools. The approximately 1,000 language arts and 1,500 natural science course goals are contained in separate volumes and are arranged in order according to taxonomies of the respective subject areas. Each course goal is classified according to the program goal to which it relates, the nature of the goal (process or knowledge), and the appropriate initial instructional level where it is thought reasonable to begin seeking attainment of that goal (primary, intermediate, upper, or high school levels). Course goals that are logically related are indicated in the lists. The possible uses of these lists for assessing present school goals, as starting points for discussion, as a basis of accountability assessments and in guiding the revision of curricula are discussed. (The appendix on "communications, questionnaires, and forms" referred to in the project report is not included in this collection.) (AL)

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Final Report

Project No. I-J-035
Grant No. OEC-X-71-0026(057)

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DEVELOPMENT and EVALUATION of COURSE GOALS in SCIENCE and LANGUAGE ARTS for GRADES K-12

January 15, 1972

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Office of Education

National Center for Educational Research and Development
(Regional Research Program)

SE 013 266

ABSTRACT

The project was an effort to identify and classify desired student learning outcomes which should be expected as the results of Language Arts and Science courses being taught in the Portland Metropolitan area schools. Curriculum Directors and Department Heads throughout the tri-county area collected copies of all Language Arts and Science goals and objectives which had been written or purchased for use in their respective districts. Under the supervision of tri-county Curriculum and Evaluations Specialists, these goals were rewritten and classified to meet the criteria for Course Goals. The actual writing, rewriting, and classifying was done by 24 highly qualified classroom teachers.

In phase I of the project, a five week workshop produced approximately 1000 Language Arts and 1500 Science course goals, each set accompanied by a practical taxonomy for arranging them. Phase II of the project is the development of proto-type models of evaluation items as guides for teachers when they write items to measure how nearly students achieve the desired learning.

Success in the first year's efforts has encouraged the continuation of the project to develop course goals in six more Curriculum areas.

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U.S. DEPARTMENT OF
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National Center for Educational Research and Development

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INTRODUCTION

Several school districts and County I.E.D. offices in the Portland Metropolitan Area had begun to work independently toward developing goals which define more precisely learning outcomes expected as the results of teaching specific courses. They had studied various material such as: Instructional Objectives Exchange collection produced by the Center for Study Evaluation, UCLA; objectives prepared by National Assessment of Educational Progress; and the Master Objective List by Westinghouse Learning Corporation. None of this material, though helpful, provided the desired type of goal statement.

Persons who became involved in goals writing soon became aware of the limitations of single district efforts and looked to cooperation with other interested districts. The result, based on common needs of the Tri-County Area was establishment of the Development and Evaluation of Course Goals in Science and Language Arts project.

The first phase of the project was to attempt to identify clearly, for educators, a wide range of learning options in these two subject fields. From these options it was hoped that school districts, schools, departments, grade divisions, and teachers would be able to select goals which most nearly meet the needs of the students and communities they serve. It proposed a special effort to keep each course goal free from reference to teaching method and classroom activity if at all possible. Where process goals were concerned, an effort was made to specify processes free of the subject matter which forms the operands of the processes. The intent here was to leave the districts complete freedom in text adoption, and to leave teachers free to exercise their creativity and ingenuity in planning teaching methods and classroom activities leading to accomplishment of the student learning expressed in the goals.

Also included in the project was an attempt to suggest, in the goal statement, ways of measuring whether, or not, the student has achieved the desired learning. It was assumed that student learning is to be distinguished from the mere completion of a prescribed curriculum, or set of classroom activities. A fuller statement of the philosophy and purposes of the project will be found in Section V, Course Goals General Introduction, of this report.

METHOD AND PROCEDURES

The project was mostly developmental in nature, and therefore required a considerable amount of research and trial. It was necessary for the curriculum directors to research the programs of the Tri-county school districts to formulate statements of district level goals. The attempt here was to include a comprehensive set of district level goals rather than a set of goals common to all districts. Several trial taxonomic classifications were tried before a workable scheme was finally developed.

Each district superintendent was asked to select a department head or a curriculum specialist to gather from his district all statements of goals and objectives which had been used in teaching Science and Language Arts in his schools. These persons made up the Course Goals Support Committee. After an orientation session where the task was outlined the Support Committee gathered and sent all available goals and objectives in the two subject fields to the Coordinator. A group of clerks, under curriculum and evaluation specialists, sorted and made a preliminary classification of the goals, and this set of material became the starting point for the Goals Developers.

Concurrent with this activity was the development of the tentative taxonomy, a set of criteria for selecting qualified teachers to develop the goals, a training program for the teachers selected as goal developers, and a set of criteria by which a goal was determined to meet the standards required of a Course Goal. These tasks were accomplished by the project's Steering Committee with the help of various curriculum and evaluation persons.

The actual selection of course goal developers was done by soliciting nominations by each district superintendent of outstanding teachers from all school districts in the Tri-county Area. The nominees were then asked to fill out a questionnaire giving their general and specific preparation for teaching the subject field. They were also asked to submit samples of goals and objectives which they had personally written. From the information supplied on the returned questionnaires, the project's Steering Committee selected 12 goal developers to work in each subject field. Care was taken in selecting the goal developers to assure representation from all grade levels and in subject matter competencies. The course goal developers then received orientation and training in a series of sessions totalling approximately 12 hours.

RESULTS

During the 4-week goals development workshop, the teachers examined each of the goals and objectives that had been collected and revised them in order to eliminate duplication and overlap and in order to bring them up to the standards required by the Course Goal Criteria. The results of this workshop were then edited and prepared for printing by 7 goals developers and specialists in a 2-week follow-up workshop. The critique edition to the goals was printed by the first week in September. This edition included the Course Goals in Language Arts, K-12 which is Section VI of this report. It contains approximately one thousand Language Arts goals. Approximately fifteen hundred Science goals make up the Course Goals in Biological and Physical Science, K-12 book. It is Section VII of this report. These volumes are in no way to be construed as final and complete. The design of the project is that there will be constant review, revision, and up-dating [of the course goals] to improve the collections and to keep them current with the changing curriculum and educational needs of school districts.

Throughout the development of the project, computer programmers from the tri-county school districts worked closely with the project to design a computer program and a classification system for the goals so as to facilitate the eventual computer storage and retrieval of the goals along with their related evaluation items. A preliminary trial run of the computer program has been completed which indicates that it will become a practical help to the classroom teacher. When storage of the goals and evaluation items has been completed, teachers can select a set of goals, along with evaluation item models, to meet a particular instructional course at any given level of instruction by giving a few simple instructions to the computer.

The prototype items which will be used by the teachers as models to write test items to evaluate students' achievement or progress toward the desired learning are now being written. This will be difficult because of the diversity of kinds of learning outcomes represented in the collection.

At a meeting of superintendents and curriculum persons of the tri-county area, the critique edition of the course goals was distributed. Information about the goals collections and their potential use was given to those receiving copies of the goals. Critique feedback forms were included with the goals with a request that criticism be returned to the committee which will help in the revision and up-dating of the collection. Requests from quite a few Oregon School districts have been received. These have been filled until the supply of copies ran out. There have also been several out-of-state requests. Plans are now under way to find a means of supplying these demands.

CONCLUSIONS

It has been discovered that these sets of course goals, which were primarily derived from actual school district curriculum guides, do not represent all desired learnings expressed in broader district goal statements. This can be seen by checking the collection of science goals. The first two Program Level goals which deal mostly with scientific factual knowledge and experimental process or method are given considerably greater attention in the course goal collection than is given to the last three Program Level goals which deal with personal and social problem solving and value choices. Much work needs to be done to supply course level goals to develop these broader program goals.

Another discovery was that the language of administrators and specialists differs in many places with the language of classroom teachers. The choice made during the project was to premit the teachers of the goals development teams to use their language and let supervisors and specialists try to understand them. The rationale was that it will be teachers in the classroom who must eventually translate goal statements into learning outcomes of their students.

Preliminary work is being done to determine if any goal statement that can be expressed as a learning outcome for a student can be validly measured. These investigations are expected to throw new light on the requirements of a useful learning goal statement, as well as to clarify the many problems and dimensions of measurement and evaluation.

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COURSE GOALS

GENERAL INTRODUCTION

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Volume 1 of 3

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AN INTRODUCTION TO THE USE OF THE TRI-COUNTY AREA COURSE GOAL COLLECTIONS IN LANGUAGE ARTS, PHYSICAL AND BIOLOGICAL SCIENCE

by

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and
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Tri-County Course Goal Project
September 1971

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INTRODUCTION

This introduction has been prepared to explain the values and uses of the collections of "course goals" prepared by a highly competent group of teachers from the metropolitan Portland area. The project is long on ambition and short on resources. Its attempt last summer was to produce a clearly-defined set of desired learnings for students of language arts and biological and physical science. The point of this attempt was to bring clearly before educators in the area a wide range of learning options in these subject fields. From these options it was believed goal selections could be made for school systems, schools, departments, divisions, grade levels, or by individual teachers. Such goals could serve the needs of policy makers who set the parameters of learning and of implementors who meet children in classrooms.

The reason for involving the Tri-County area was to capitalize on the broad financial and professional resources of this large area. The vision of the project is not myopic. Next year an effort will be made to create similar goal collections in six additional fields: social studies, mathematics, music, art, health and physical education. Within three more years, all areas of the curriculum should have goal collections and provisions for continuous revision and improvement of each collection should have been established.

Financing of the project is catch-as-catch can. Contributors in varying amounts to this year's effort included the Multnomah County IED, Portland Public Schools Evaluation Department, USOE Small Grants Program, Oregon Board of Education, and Washington County IED.

A natural question to ask is, "Why this interest in writing goals? Aren't there already more goals and objectives written than teachers to use them?"

A fair question. The quarrel with goals and objectives as written is not with scarcity, but with quality and usefulness. The schools exist so that students may learn. But, learn what? Goals should answer that. They should answer the questions of the public about what their sons and daughters are expected to learn, and should provide teachers with a clear mandate for teaching.

Most goals and objectives as written do not do this. They do not serve the teacher as a job definer, the student as something to aspire to, or the parent as a source of information. The Tri-County goal collection attempts to answer these needs.

As is true of such projects generally, the product is not perfect or even close to it. The teachers who produced the goals, though highly qualified as teachers and trained as goal writers, found the task far more rigorous and demanding than they expected. Criteria were carefully prepared, and practice sessions produced some competence in meeting the criteria. The product is of far more uniform quality than other goal collections such as Westinghouse, IOX (UCLA), and National Assessment, but, not perfect. Much revision is needed, and that is being provided for. But, the collections produced are satisfactory for their intended purpose. They can in their present form serve as an important stimulus to defining more useful goals and selecting and creating those which serve the educational needs of communities and of young people individually.

With that brief introductory note, we shall move to more weighty considerations.

The Hierarchy of Educational Goals

The mission of school systems is education, and the goals of education in the end are what students learn and the behavior they exhibit as a result of learning. Boards of education are responsible for approving learning goals at the first (district) level. These should reflect the expectations of the community and the larger societies of the state and nation regarding the learning that should result from school experience. Such goals, to be of value, should:

A. Be general enough to encompass all outcomes within relatively few statements.

B. Represent learnings that serve the dual needs of the individual and his society.

C. Provide direction to curriculum and program planners.

D. Be measurable in terms of broad indicators.

These criteria appear disarmingly simple, but in fact are difficult to meet. Just how difficult is seen in the fact that few school systems make effective use of such statements in developing programs and curricula. Examples of system goals are:

> Every child shall respect the rights of every other child regarding his possessions, his physical safety, and the free expression of his ideas.
>
> Every child shall be able to read and to comprehend what is read within unavoidable constraints of ability and physical and mental health.
>
> Every child shall be able to set goals for himself, formulate plans for attaining them, execute his plans, and evaluate his efforts.
>
> Every child shall attain that level of self-confidence and confidence in others required for personal and social effectiveness in this society.
>
> Every child shall possess sufficient knowledge of the facts and principles of science, technology, government, and human relations to make effective decisions as a person and as a member of this society.
>
> Every child shall be able to make effective use of the resources of the school and community in purusing his learning interests.

These "goal" statements represent a condition in each case that is not likely entirely to be attained; each represents an optimum condition toward which the efforts of the system can be directed. Not until evidence is collected as to the degree to which they are attained (baseline data) can changes in goal status achieved through changes in resource allocations be measured over time.

Second level goals are required to expand the meaning of each district level goal. Such goals, which we arbitrarily designate as program goals, should spell out more fully the meaning of the district goals and should provide the basis for formulating goals of courses and other units of educational experience. These goals may be formulated by curriculum specialists at the district, subdistrict, or school level, but probably at only one of these. Program goals define the outcomes of an entire area of instruction such as mathematics, English, or industrial arts. Two levels of goal specification remain as will be explained shortly. Examples of program goals are:

A. Students shall be able to spell all words enjoying common usage in the English language.

B. Students shall be able to employ elements of structure of the English language appropriately in their oral and written expression.

C. Students shall be able to employ the conventions of punctuation appropriately in written expression.

D. Students shall be able to locate appropriate references in doing research, to document such references according to accepted conventions, and to employ the findings appropriately in support of a conclusion.

E. Students shall be able to reach conclusions based on the weighing of relevant facts and authoritative opinion, and shall demonstrate ability to alter conclusions where new evidence indicates this should be done.

This second level of specification should be sufficiently general as not to suggest specific grade placement, but as has been stated, specific enough to provide a basis for generating the subgoals of courses and other units of educational experience that will comprise the program.

The proposed use of program goals imposes great responsibility on those who formulate them. They represent the complete interpretation by educators of the broad societal-education (district) goals adopted for the system by the Board of Education.

If program goals do not faithfully represent the meaning of the district goals, it is entirely possible to attain them without attaining district goals. This phenomenon will be dealt with more fully later.

The final two stages (course goals and behavioral objectives) may be referred to as the implementing stages, for it is here that district and program curriculum goals are translated into specific goals which suggest how instruction should be organized and what resources it will require.

If one were to start with the district level goal, "Every child shall be able to communicate with others, both orally and in writing, in a manner that satisfies his own need for expression and the requirements of those under whom he may become employed or receive further education," and progress to program level goals which elaborate on the district goal such as "Students shall be able to spell all words enjoying common usage in the English language," "Students shall be able to employ elements of structure of the English language appropriately in oral and written expression," "Students shall be able to employ the conventions of punctuation appropriately in written expression," and "Students shall be able to express their thoughts in writing simply, logically, and in a manner easily understood by others," one would reach that stage where it is necessary to consider how educational programs should be organized to reach these goals.

The third level of goal specification must, therefore, provide the basis for organizing educational experiences within schools to accomplish the program level goals. In this process, program level goals will undergo both an elaboration of detail and a differentiation in terms of student characteristics (age, sex, ability, and interest). Typically, these will be the learning goals of courses (high school and departmentalized elementary schools) and of areas of instruction (non-departmentalized or non-graded elementary schools).

The first course goal example below is a goal of a speech course; the second a goal of dramatics in the elementary primary grades. Examples are:

> Students are able to paraphrase and summarize in group discussions, and;
>
> Students are able to use special body and voice techniques (impersonation, emotional expressiveness, movement representing action of character) in storytelling.

Assume that a program goal were stated as follows: "Each child shall be able, where appropriate, to employ mathematical methods in analyzing and interpreting data." Course or "unit of experience" level goals appropriately derived from this goal might be for young children:

> "Each child shall be able to find averages and ranges for sets of data and to explain the uses and limitations of these measures as they apply to such data."

For older children:

> "Each child shall be able to compute the mean, the median, and the inter-quartile range for the sets of data and to explain the uses and limitations of these measures as they apply to the data."

Even at this level of specificity there is much leeway for the teacher to select ways to accomplish these goals. Children of greater and lesser ability should handle data of greater and lesser sophistication.

It might also be noted that the measurement of affective and process learning, though it cannot be precisely measured and related to one course or even one program because of the need to plan for such learning across course and program lines, can be measured at the district level. Some affective and process learnings should receive attention in all programs, and system level goals may be restated at program and course levels so that teachers of all types of courses make explicit provision in their instructional planning to meet these goals.

The foregoing discussion may be summarized as follows. First, goal statements at the district level should be based on an analysis of the needs of society and the young people being educated. Second, these broad statements should undergo at least two elaborations and refinements, one at the program level (wherein each district goal is represented by several subgoals), and one at the course or "unit of experience" level, in which a similar elaboration of program goals is undertaken. Course goals should be differentiated according to the age, interests, abilities, and needs of students, and grouped logically for instructional purposes. The level of definition should be sufficiently precise as to leave no doubt in the minds of teachers what learning outcomes they should attempt to achieve.

Third, through these two levels of successive refinement of district goals, no instruction as to methodology would be prepared. This task rightly belongs to the teacher, who makes the final translation and who must plan not only to achieve the goal in question, but to employ methodology that will achieve as many concomitant goals as ingenuity permits. This final act of curriculum design cannot be preempted at a higher level because there is no way the needs of students and the strengths of the teacher in a given classroom can be anticipated.

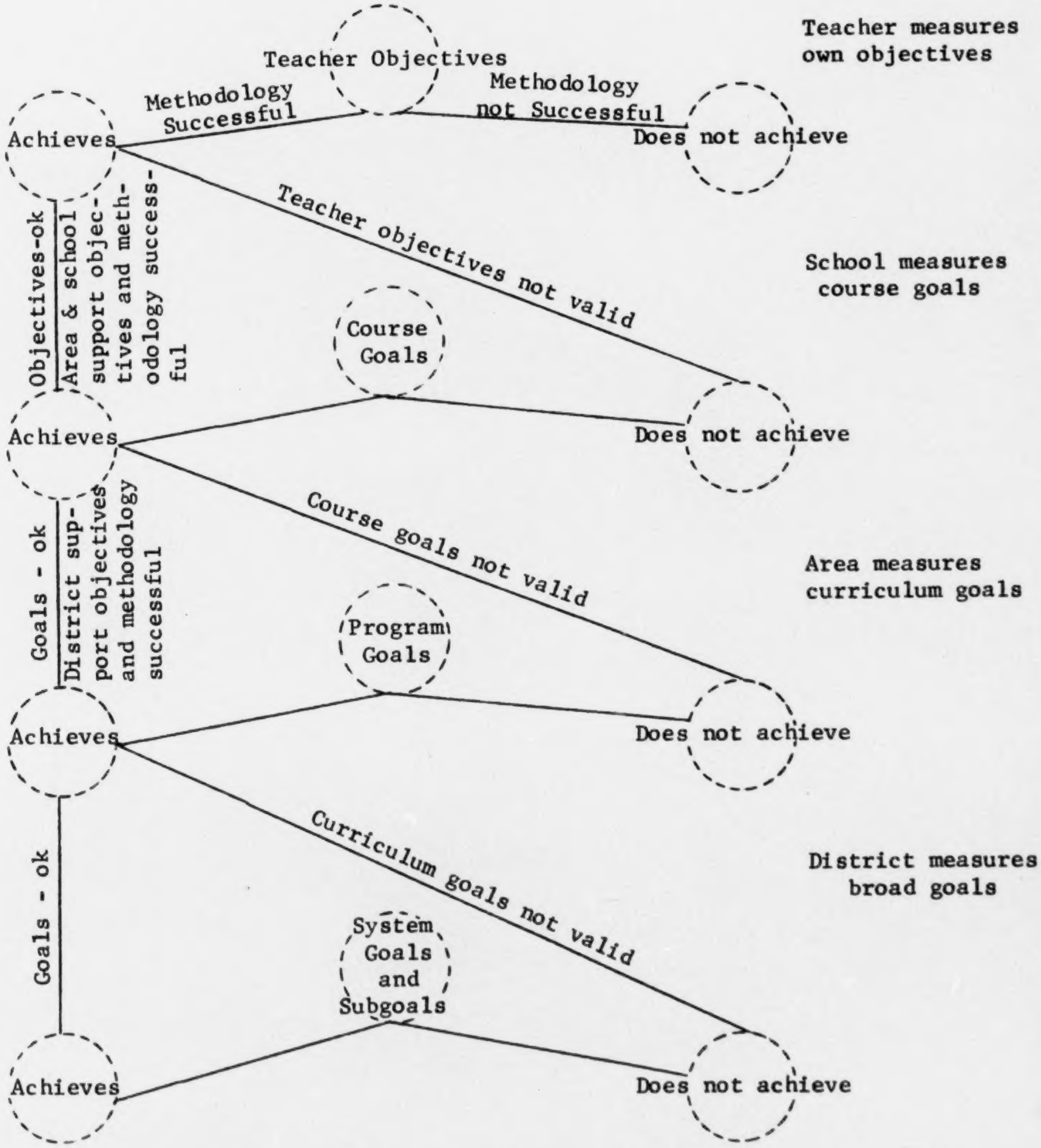
The foregoing discussion was presented to show the place of "course goals" in a suggested hierarchy of goals. The Tri-County project chose the course level for defining goals for the following reasons. First, a great number of goals and objectives of similar specificity already have been published that were drawn upon for ideas. Second, this is the type of goal with which curriculum experts and teachers are most familiar. And, third, clarification of the purposes of current programs and practices seemed prerequisite to a review of educational purposes from a broader societal perspective. If goals of present programs are not explicit, how can they be judged as relevant or not relevant to larger societal goals?

So, it is envisioned that school systems will proceed to make broader community-societal reviews of educational purposes, but with a more clearly defined set of professional goals as a backdrop and point of reference.

Measurement of Educational Goals

Evaluation is possible at three levels, if goals are properly set forth and related at all levels: broad indicators at the district level, more specific criteria at the program (curricular) level, and very specific criteria at the course (unit of experience) level. Measurement of teacher objectives should be the responsibility of the teacher, not the district. The logic of the system is as follows:

Levels of Evaluation


Teacher Objectives
Teacher measures own objectives
Methodology Successful
Methodology not Successful
Achieves
Does not achieve
Teacher objectives not valid
Objectives-ok
Area & school support objectives and methodology successful
School measures course goals
Course Goals
Achieves
Does not achieve
Course goals not valid
Goals - ok
District support objectives and methodology successful
Area measures curriculum goals
Program Goals
Achieves
Does not achieve
Curriculum goals not valid
Goals - ok
District measures broad goals
System Goals and Subgoals
Achieves
Does not achieve

Viewed from the standpoint of goal formulation, the flow of the diagram is from bottom to top; viewed from the standpoint of accountability, the evaluation sequence flows from top to bottom.

The differences among levels of goals (district, program, course) relate to levels of generalization, not distinctions in essential character. In fact, the test of a good goal structure is the consistency that is retained in the essential character of the broadest (most generalized) statement as it is subdivided as needed to clarify programming requirements to meet it.

This diagram shows that teaching objectives derived from course goals are employed by the teacher, and his own testing procedures will tell him whether or not his objectives have been reached. If his objectives have been reached, but measurement at the course level reveals that the learning goals of the course have not been attained, the objectives of the teacher do not truly interpret the goals.

At the next level, if course goals are measured and have been achieved, but measurement of the program goals from which the course goals were derived reveals that the program goals have not been met, the course goals do not represent a valid interpretation of the program goals.

The same interpretation may be applied when comparing evaluation results at the program and district level.

It will be noted that measurement criteria at each level must be valid with reference to the goals of that level if the process just described is to function right.

School systems without a goal structure of the type described have little basis for constructing a system of accountability. The two essential ingredients for accountability in a system whose mission is education is a consistent, valid goal structure, and a consistent, valid measurement program. The second cannot exist without the first.

Characteristics and Meanings of the Course Goal Collection

This goal collection was created for those who are interested in determining educational priorities, those who need to design curricula, and those who are interested in accountability. The qualities of the goals that make them serviceable for these three purposes are:

1. They are clear and precise in meaning;
2. They have direct or indirect personal and social importance as something to be learned. Note: Not all goals are important for all students; since the collection is expected to serve the needs of a range of interests and abilities.

The quality of clarity and precision of meaning make it simple to devise learning experiences to attain the goals and to state evaluative criteria to measure their attainment. The quality of personal and social importance serves to screen out a large number of learnings of marginal importance, leaving still a large number of potentially valuable learnings which will assume different priorities depending on the interests, abilities, and career aspiration of learners.

The question of values

No effort was made to specify value goals in either science or language arts. Considerable thought was given to the question, but it was concluded that the state of knowledge regarding values as learning goals was not sufficiently advanced to encourage efforts to produce such goals. Instead, project staff members are continuing their efforts to achieve more understanding of the problem in the hope that when it is attacked there will be some chance of success.

Tentative ideas are these: (1) values may be best conceived as standards or criteria for judging the worth of human experiences; (2) values are a concomitant of knowledge and process learning. From this beginning, perhaps a rationale can be constructed for dealing with values in goal formulation.

Process-Knowledge Goals

An effort was made in this goal collection to make distinctions between knowledge and process goals, and much still remains to be done in sharpening those distinctions. Basically, processes were thought of as experience-tested procedures that assist man in his efforts to communicate, to inquire, to solve problems, or to produce. Thought processes such as those identified in Bloom's Taxonomy of Educational Objectives: Cognitive Domain, are valid learning goals only if they can be taught -- if they will be learned without instruction of any kind, they should not occupy a place in the school curriculum. To illustrate, ability to "analyze" is meaningful as a learning goal only if processes representing the act of analysis can be identified and taught. Those that can are those that have proved useful in man's experience and have been described and replicated. In this sense, they are conventions.

The "Fundamental Scientific Processes" section of the science taxonomy (page 12) is essentially a taxonomy of scientific processes that have become conventional through proven utility and value. It is questionable if non-verified processes should be taught, though experimentation with non-verified processes may well be a goal in itself. Seeking better processes of communicating, inquiry, problem solving, and producing is in the interest of the child and his society. Such a goal, however, could hardly be classified as a "fundamental scientific process" unless the processes taught children to achieve this end are themselves standardized and conventional.

An important additional distinction that was recognized, but imperfectly maintained in the collection, was between a process called for solely to demonstrate knowledge and a process that applies knowledge in a way that has utility in inquiry, problem solving, etc. To illustrate the difference:

Type I: Demonstration of Knowledge

> The student is able to explain vertical air movement in terms of temperature, pressure, and density.

Type II: Application of Knowledge

> The student is able to predict the kinds of locomotion possible in animals with various shapes and kinds of appendages.

There are still goals in the collection erroneously labeled process that are simply statements of behaviors that exhibit knowledge. Such statements are appropriate as evaluative criteria for the measurement of knowledge, but not for describing the knowledge itself. With use and feedback, such statements will be corrected and the goal bank made more consistent.

Another aspect of goal defining that is extremely troublesome is the progression from specific to general. Much more can and hopefully will be done to clarify distinctions between facts, criteria, terminology, principles, laws, generalizations, and other forms of knowledge first categorized by Bloom.

In this collection an effort has been made to organize sets of goals in sequential or logical order, and to identify a series of related knowledge or knowledge and process goals by bracketing them. Again, this was done under pressuresof time, and feedback from the field will be useful in revising and "fleshing out" these sequences.

Users of these goals, and those who attempt to formulate goals of their own, will be confronted from the start with nagging problems of the degree of specificity of goal definition. This will normally be a function of the use to which the goal will be put in instructional planning, and since learning requirements will vary within courses from simple terminology to law or principle to concept, the statement of the goal must conform to the learning desired and the value that statement will have to the teacher and learner in providing meaning and direction to the learning task. Do not be intimidated by these problems. Common sense and need, not a series of highly defined distinctions and sophisticated hierarchical classifications should dictate the wording of instructional goals.

Note the characteristics and values of the following goals, each of which differs widely in its level of specificity:

Example 1: The student knows the principal characteristics, causes, destructive potential, and precautions to be taken as related to hurricanes, cyclones, tornadoes, typhoons, monsoon winds, and thunderstorms.

Example 2: The student knows ways in which winds are helpful to man and ways they are harmful to man.

Example 3: The student knows that the current in a medium is directly proportional to the potential difference in volts (V) and inversely proportional to the resistance (R) in ohms. $I = \frac{V}{R}$ (Ohm's Law).

Example 4: The student knows that the term velocity (directional motion) is defined to be speed in a given (specified) direction.

Each of these goals clearly states the learning desired, but the implications for instructional planning vary widely among them. The only common characteristics are that each states a learning of potential value at least to some students, and each is stated clearly enough to provide direction to the teacher in instructional planning. Note, however, that choices of subject matter are not restricted by the goal statements themselves. It is a common fault of writers of educational objectives not only to state the objectives, but to designate subject matter. This in turn restricts the teacher and student in selecting subject matter that meets special student interests.

Example 1: Designates subject matter: The student will be able to describe the plot in The Old Man and the Sea.

Does not designate subject matter: The student will be able to describe the plots of plays and novels.

Example 2: Does not designate subject matter: The student will know fluids are used to perform work.

Designates subject matter: The student will know how gasoline is used to perform work.

Another way of stating this phenomenon is that the more specific the objective, the more restrictive the curricular implications. It is the belief of the project staff that behavioral objectives as usually written are too specific and restrictive to function well as goals at the course level. The teacher himself should make those final curricular "loadings."

It is assumed that if teachers are provided more exact process definitions they will be able to substitute their own subject matters, and will be much freer to select problems, issues, and other subjects of inquiry that are of interest to students than if the process goal itself specifies the subject matter. To illustrate:

Subject loaded process goal:

The student will be able to associate rain with clouds, and to predict that when it is cloudy it may rain.

Non-subject loaded process goal:

The student will be able to associate two interdependent phenomena, and to predict from one the likely occurrence of the other.

Note the far greater range of curricular options offered the teacher by the second goal.

It cannot be said that the 2500 goals prepared in science and language arts conform in every instance to the distinctions and specifications described above. But they are a beginning. The real worth of this effort will be realized only if users in the field critically evaluate the original lists and assist in their revision through the procedures being established.

A Word on the Taxonomies

Thought was given to several ways of classifying goals so they could be located readily in the collections. Because teachers are accustomed to think in terms of the subject matter with which their courses deal, it was decided to order the goal collection by subject categories.

The science classification started with one found in Bloom's new book, Handbook on Informative and Summative Evaluation of Student Learning, but was extensively modified by the science goal writing committee during the four-week period. The language arts taxonomy was initially written by Marian Zollinger, language arts authority and former supervisor in the Portland schools. It also underwent revisions by the teacher committee.

Ultimately, it is planned to put each goal into computer storage, retrievable by subject category, by level (P, I, U, H)*, by type of goal (knowledge - process), and by higher level goals to which it is related. This information is published in the taxonomies both for science and for language arts.

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*Primary, intermediate, upper, high school.

It is hoped that curriculum development committees and teachers individually will review these features of the taxonomy critically and report to the Tri-County Steering Committee any recommended changes, using the forms provided. The taxonomies, like the goal collection, will be revised at least annually.

Nature and Uses of the Goal Collections

The goals in these collections include many that are applicable only to students of special interests and abilities. For example, the following goal might apply to students with advanced interest in literature:

> The student knows that the sixteenth century masque was an elaborate form of court entertainment, combining poetic drama, music, song, dance, costuming, and spectacle.

Such a goal obviously is not appropriate to teach to all children; yet it may be defended as a worthwhile goal for serious and interested students of literature, drama, or music who may have either a personal or pre-professional reason for learning about the role of the masque in the development of western art and culture.

In contrast, goals relating to universally needed skills of communication are also included, as illustrated by this goal:

> The student is able to distinguish complete sentences from incomplete sentences.

So, the collection is intended to include a range of learning options that meets both universal needs and highly specialized needs. It follows that any use of the goals by teachers or curriculum specialists that assumes all goals are appropriate to all students would be erroneous and harmful.

The goals that have been stated in the science and language arts collections represent necessary judgments about what is important for young people to learn.

Where process goals are concerned, these judgments are somewhat less difficult than is the knowledge area, because learnings most universally recognized as necessary in the society relate to processes of communication, problem solving, inquiry, and production. The number of such conventions and processes is small compared with the vast body of accumulated human experiences classified as knowledge.

Nonetheless, it is recognized that the goals as stated represent only a beginning in the listing of potentially important and useful learning outcomes of both types.

The judgments that were made unquestionably are biased in the direction of those processes and that knowledge that comprise the stock-in-trade of teachers of language arts and science. But the door is open to add learning goals that may be articulated by societal groups which also have a stake in what young people learn about communication and science. Having a clearly stated, comprehensive set of learning goals stated by teachers should simplify for others the task of reviewing what school personnel think to be important, then adding what they believe also to be important. Infusion of fresh thinking from the business, industrial, scientific, and cultural interests of communities should update both knowledge and process goals and cause a reassessment of the relevance and value of existing goals. In this way, new educational vistas can be opened and translated into school programs.

It is hoped that this use of these goal collections will be widely employed and that all districts doing so will contribute new goals to the central collections through the feedback system provided.

In decisions about what knowledge goals to include, laws, principles, and important generalizations were favored over discrete facts; although every effort was made to state such goals with as great a degree of clarity and specificity as possible. The reason for this is apparent; principles, laws, and generalizations are the distillate of human experience with most universal value. Another type of knowledge favored was that required in the operation of process, as, for example, nomenclature, conventions, criteria, etc.

Despite the use of these general guidelines, decisions about what to include and not to include were obviously difficult and will be the subject of disagreement among readers. This argues, perhaps, for more rather than less options.

The goal collections will serve many uses. The most obvious is in reviewing what should be taught in the science and language arts program of school systems. These efforts can range from decisions by individual teachers to policy decisions at the school board-community level. Higher level reviews will be more profitable after goals have been produced in other areas of the school curriculum, because questions of overall priority cannot be decided satisfactorily in the absence of defined learning options in all existing (and eventually, all potential) programs of learning.

A second important use of the goals is in curriculum development. The goals have been constructed according to criteria designed to render them useful in curriculum planning. Earlier reference was made to the fact that course goals should, as much as possible, lend themselves to "subject loading" (specific curricular content) by teachers. This means, in effect, that district curriculum guides based upon them must be illustrative rather than prescriptive, since the essence of a well-stated course goal is to leave the door open to the teacher to select the specific subject matter and methodology that will lead to the goal's accomplishment. Prescriptive curriculum guides will limit unnecessarily the methodological and subject matter options which the ingenious teacher can employ in helping students achieve these goals.

A third use of the goals is to review the adequacy of instructional objectives in guides, texts, and other instructional materials in use in a district. The goals in this collection were designed to meet the following criteria:

A course level goal should:

1. Be clearly justified in terms of its value to the learner and to society.
2. Reflect the needs of students of a particular age, interest, or aptitude.
3. Be stated in a way that permits and facilitates instructional planning by the classroom teacher by suggesting through its clarity and directness of purpose, learning experiences that are appropriate for its achievement.
4. Be stated in clear and concise language.
5. Be stated as a learning outcome.
6. Represent an identifiable component of a program level goal.
7. Be stated so that evaluative criteria that indicate its attainment can be readily identified.

Admittedly, not all goals in the two collections meet all of these criteria, but because the effort was made to do so, this collection has perhaps the most uniform level of quality found in any known collection of educational objectives. These same qualities should be sought in the guides and instructional materials of school systems.

A fourth use of these goals is in the establishment of accountability in school systems. Clearly defined educational goals are an essential prerequisite to letting teachers know the parameters of their responsibility and for teachers and student to reach agreement on the limits of student responsibility. In view of the need to adapt educational goals to individual learning needs, and because of the uncertainty that exists about what is universally important learning, accountability based on comparative performance of students, classes, schools, and school systems appears unpromising. On the other hand, a system that establishes a clearly defined goal structure clarifies instructional policy enormously and provides a basis for evaluation that permits measurement of achievement over time and the accumulation of evidence of program effectiveness. This type of accountability is both feasible and productive. It is to be expected and hoped that school systems and schools within systems will select learning experiences that differ with the differing needs of the economic, social, racial, occupational, and cultural sub-societies of communities. Only in the case of those learnings that can be identified as universally in the interest of each child and the entire American society is it justified to teach toward common goals and apply comparative performance measures. Hopefully processes considered as having this universal value and utility can be added to those already fairly well agreed on (use of the mother tongue and of mathematical conventions), particularly as they relate to inquiry and problem solving.

We are in great need of more instructive criteria for determining what knowledge is universally needed, and will continue to search for new criteria and a refinement of those previously stated (see page 18, last paragraph).

A fifth use of the goal collection, as suggested by the discussion just concluded, is as a guide in the search for a better understanding of what learning is and how learning goals should be stated. The distinctions referred to in the preceding pages are only a beginning in this important work -- important for the light they shed on the purposes and potential achievements of education as a human endeavor.

ED 061043

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COURSE GOALS IN LANGUAGE ARTS, GRADES K-12

CRITIQUE DRAFT

A cooperative project of the school districts of Clackamas, Multnomah and Washington Counties, and partially funded through grants from U. S. Department of Health, Education & Welfare, Office of Education, and Oregon Board of Education

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COURSE GOALS DEVELOPMENT

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Volume 2

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INTRODUCTION

In an accompanying Introductory Booklet, you will find a description of the purpose, history, form, potential uses, and hoped for response to this Course Goal Collection. The aim of that booklet is to provide you a theoretical and historical guide to the use, revision, and extension of material in the collection. This brief additional introduction has the more pedestrian aims of: (A) presenting a brief review of the origins and purposes of the collections, and (B) demonstrating how to read, relate, and use the associated materials that accompany the collection.

A. A Brief Review of the Theoretical and Historical Setting of this Course Goal Collection

Why do we need explicit instructional objectives?

Education is changing its purposes, procedures and curricula under the pressure of social evolution and the resulting mutation of societal needs and expectations. For this change to be orderly it must be planned and controlled. And, for it to be planned and controlled, four things are necessary (see Figure I):

1. Educational objectives must be determined and stated explicitly at every level.
2. The learning experiences that help to bring about the attainment of the objectives must be selected and organized.
3. The extent to which the objectives are being attained and their validity and adequacy must be assessed.
4. Revision of objectives and means of attaining them must result from these assessments.

Aside from facilitating educational improvements, such explicit goals are necessary for communicating to the community, students, teachers, staff, and professional consultants the aims of the school system, so that each may play its role in the fulfillment and revision of these goals.

What is the difference between program goals and course goals and how they are to be used?

There are two differences between program goals and course goals. First, they differ in level of generality, with program goals describing broader outcomes and course goals describing more specific classroom

COMMUNITY (PUBLIC/PRIVATE) - STUDENT - STAFF - PROFESSIONAL CONSULTANTS

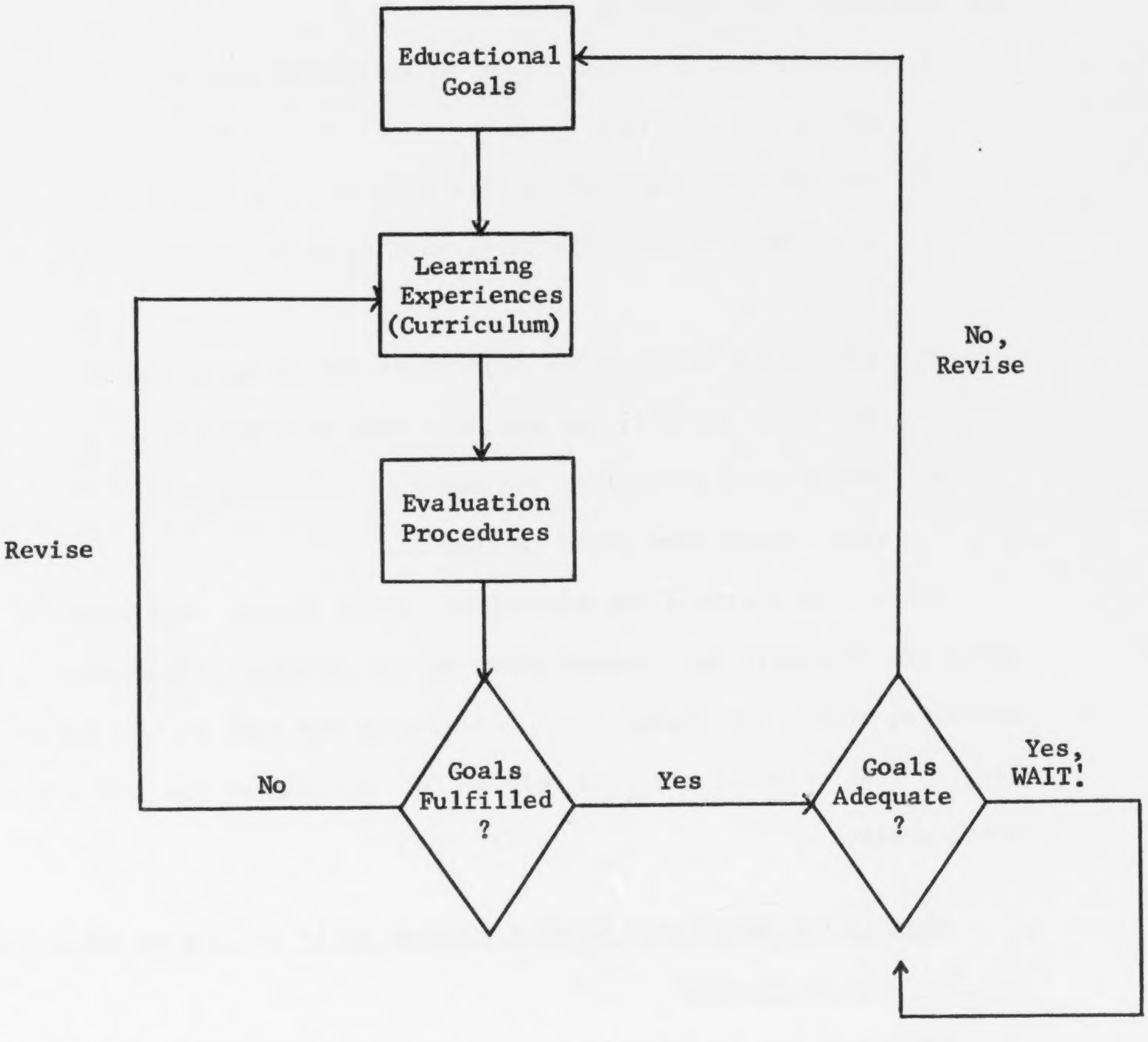
Educational Goals
Learning Experiences (Curriculum)
Evaluation Procedures
Goals Fulfilled ?
Goals Adequate ?
Revise
No
Yes
No, Revise
Yes, WAIT!

Figure I

oriented outcomes whose attainment leads to program goals. Accordingly, the course goals are narrower in scope and temporal range. Analogously a program goal of a football team could be to "make a touchdown;" a course goal to "make a first down."

Second, these two kinds of goals differ in the type of planning for which they are best suited. Program goals serve as guides to planning and organizing programs on the district, area, and school level. Course goals serve as guides to planning courses in schools, departments, and classrooms. Teachers, who ultimately must direct students toward the goals, should be intimately involved at both levels of planning.

Where did the program and course goals come from?

The program goals were prepared by the Portland School District Evaluation Team in consultation with administrators, teachers, and curriculum specialists throughout the metropolitan Portland area. The evaluators used existing goals of the appropriate level of generality and planning orientation as models and guides, and added goals that in their professional judgment were desirable.

The course goals were developed by outstanding teachers assembled from the Tri-County school districts. They, too, used such models and guides as were available. They were guided and supported by Tri-County and State Board of Education curriculum and evaluation personnel.

What is the taxonomy and how is it related to the course goals?

The taxonomy evolved along with the course goals as an index to them, and provides a picture of the major topics covered by them as well as of the organization of those topics. The taxonomy is accordingly a guide to course goals related to a particular topic or sub-topic for course planning. Its subject breakdown also provides modules for consideration in curriculum planning.

Why are there so many course goals?

Course goals are meant to be adapted to meet the educational needs of local situations and individual students. Accordingly, the writers prepared as broad a selection as possible within limits of time and resources so that individual teachers might choose from them (in consultation with the administrative and consultative personnel in their school) a set which will move their particular students furthest along toward the eventual achievement of program goals.

How can the attainment of the course goals be evaluated?

As a next stage of its coordinating and developmental efforts in this project, the Tri-County Steering Committee is committing resources to the creation of evaluation criteria. It is essential, however, that these efforts be supplemented by feedback from those teachers who select and implement these goals and develop instruments to assess their attainment. A bank of evaluative instruments will evolve from the interaction of these two sources.

Is this the final version of the program and course goals?

No. In the development of both the program and the course goals, an effort was made to make them comprehensive, realistic, and immediately applicable to schools as they are currently organized. At the same time, these goals and the taxonomy are to be revised and improved as they are subjected to use and scrutiny by teachers and curriculum personnel. This is to be accomplished through the feedback instrument distributed with these goals.

As time passes, new goals will be called for to meet new knowledge and societal needs. For this reason a mechanism is being created for the continual review and revision of the goals. This revision will be largely dependent on feedback from the field.

It is hoped that the Tri-County districts will find these course goals in the biological and physical sciences and language arts sufficiently useful in the planning, control, and improvement of their procedures and curricula that they will want their teachers to participate in efforts to extend these goals to other areas. In the summer of '72, the Tri-County IED looks forward to attacking the areas of mathematics, social science, music, art, and health and physical education. Once again, outstanding teachers will be sought from throughout the Tri-County area and beyond.

What are some recommended uses of the course goal collection from which their usefulness and improvement will result?

School systems may use the collection first as a yardstick by which to measure the adequacy of goals and objectives already in use. Goals and objectives of local courses of study and textbooks can be contrasted with the goals in this collection to see how complete they are and how well they provide for different interests, abilities, and levels of achievement. They can also be evaluated for conciseness, clarity, and accuracy using these course goals as models.

These kinds of studies can be undertaken by teachers of language arts from all grade levels of the school system (to assure articulation and philosophic unity); by grade levels, divisions, or high school departments (to assure agreement as to goals and ways and means of attaining them) or by individual teachers.

A second and related use of the goals is as a starting point for reviewing what the schools should teach. The distinctions made between process and product, and within these two types of goals (see more extended discussion in the Introductory Booklet) provide provocative clues about universality of need vs. special needs based on interests, abilities, career choices, etc.

Councils for discussing what is important to teach and learn might range all the way from the public-board level to the classroom teacher. The logical sequence of these discussions is to move from broad policy goals to program goals to course goals, with appropriate community-board-staff-student representations at each level. The taxonomic classifications of this collection can serve as a counter-check on higher order goal formulations, and the goals themselves as generators of lower order classroom behavioral objectives and instructional plans.

A third use of the collection is to provide a basis for teaching-learning accountability. If a school system approves all or part of these goals as potentially valid learnings for its students, grade-level, divisional, or departmental representatives may choose from within those approved goals those that are best suited to individual or group aptitudes and interests.

It is possible for teachers to review goals with each student and contract for the attainment of those goals if a completely individualized program is desired. Or, it is possible to stake out a set of goals for target groups (regular classes, special classes, mini-courses, etc.) and to design group experiences that will lead to the attainment of these goals. In any event, the goals themselves are sufficiently explicit that means of teaching them and of evaluating their attainment can readily be devised; and where measurement is appropriate it can be applied individually or to groups to suit the needs of the teachers and of management.

A fourth use of the collection is the rewriting of courses and curricula. The actions implied in the previous statements may lead to new or modified courses of instruction, which in turn require the design or redesign of curricular experiences. The Course Goal Collection was written to be as useful to curriculum designers as possible. The desired learning is stated precisely and free of the conditions and evaluative connotations that characterize the typical behavioral and performance objectives. This was done intentionally to facilitate instructional planning and to force a long-needed clarification of the distinctions between a planning objective and an evaluation objective.

Other uses can be cited, but Districts will discover these. Keep in mind that in all of the above activities Districts are invited and encouraged to use the collection selectively and to add their own wherever this collection does not fill the bill. We hope that where you do add and modify, you will use the feedback forms and contribute to the expansion and improvement of the original collection.

B. How to Read, Relate, and Use the Course Goal Collection and Accompanying Materials

Following this introduction there are three sets of materials (indicated by the three following divider tabs), i.e., Program Goals, Taxonomy, and Course Goals. A feedback instrument is also being distributed with these goals. These materials are briefly described below to facilitate reading, relating, and using them.

Program Goals

First in this set of material is a page of Program Goals. The definition of this type of goal, its development and its relation to course goals, is discussed at length in the Introductory Booklet as are the other three types of material described below. Here it is enough to recall that program goals are more general than course goals, and that a set of program goals in a learning program (such as language arts) should constitute a description of the major learning outcomes expected from that program. A few pages further on, when we look at a sample page of course goals, we will see that each course goal has its related program goal(s) indicated.

Taxonomy

Second in this course goal manual is a Taxonomy or outline of the content of the language arts. This taxonomy has been developed along with the course goals by a group of thirteen exceptionally competent local language arts teachers from all grade levels. In developing this outline the teachers used all available models with the intent of producing a comprehensive and logically ordered classification of the knowledge in the language arts. This will serve as a framework for writing and using these and future course goals.

Course Goals

Third in this course goal manual are the Course Goals themselves. Since our aim here is to learn how to read, relate, and use the course goals, let us look at and discuss a typical page of them. (See following page.)

The first thing (1) we see at the center of the top of the page is the heading "Language Arts." This appears at the top of every page of course goals to distinguish them from those in the science booklet.

The next thing (2) we note, at the upper left hand side of the page, is a hierarchy of Classificatory Categories (3. Reading,

(1) Language Arts

(2) 3 Reading
3.4 Comprehension

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
(3) 3.41 Increasing Comprehension	(4)	(5)	(6)
The student is able to extend a sequence of ideas, facts, or details presented in written material by providing additional related examples of his own and thus more deeply impress his comprehension and retention.	P	99-3c	I
The student is able to comprehend the author's purpose, his organizational plan, and the presentation of subordinate ideas to support the main idea.	P	14-1	P
The student knows that it is useful for comprehension to re-read: a) to get meanings not perceived on first reading, b) to experience episodes in the book or article again because something appeals to him, c) for more specific detail or to fill in detail missed in first reading.	K	99-6d	P
The student knows that stopping periodically to review and accurately paraphrase the material he is reading is an aid to recall and comprehension.	K	99-3c	I
The student knows that understanding nonliteral language (figurative and imaginative speech -- similies, metaphors, euphemisms, colloquialisms, poetic expressions) is a help to increase his comprehension.	K	41-1	I
The student is able to test written material for its reality quotient by comparing it with his own knowledge and experience, other material with which he is familiar, or logical principles and thus increase his comprehension.	P	99-3c	U

3.4 Comprehension, and (a little further down the page just below the word "Goal") 3.41 Increasing Comprehension). These headings exactly match those in the taxonomy. In other words, enough of the taxonomy is produced on each page to orient the reader fully to the knowledge categories of the goals he is reading.

The next thing (3) we note on the left side of the page under the heading, "3.41 Increasing Comprehension," are the Course Goals themselves. Some goals in this column have a bracket to their left (e.g., goals 5 to 6 as you read down the page). These brackets indicate that the goals inside the bracket are logically related and may be viewed as a unit.

The next column (4) on the page as we move from left to right is headed Knowledge or Process. A "K" in this column beside a goal indicates that it is a knowledge goal, whereas a "P" indicates that it is a process goal.

In column (5), headed "Program Goal to Which This Goal Contributes," we find one or more numbers (e.g., 14-1) and/or number letter combinations (e.g., 99-6d). These numbers and letters beside each course goal indicate its related program goal(s). The actual statement of the related program goals are in the Program Goal section.

In the final column (6) at the rightmost position on the page, headed "Appropriate Initial Instructional Level P/I/U/H," we find one of the letters P, I, U, or H. These refer to the primary, intermediate, upper, and high school levels of instruction. This indicates the level of instruction at which the goal writer felt it reasonable to begin to seek directly to attain that goal with suitable adjustments in methodology, material, and depth being made by the teacher.

Feedback Instrument

The fourth and final, but most important set of materials to be found in this course goal manual, is the Feedback Instrument. This instrument is in no way intended to limit your input to the process of improvement and extension of the previous three types of material in this booklet. Instead, it represents a minimum amount of feedback we need from you to begin that process and to redesign the framework in which the Course Goal Development Project can begin similar efforts in areas other than language arts and biological and physical science. Additional input is solicited by phone, word of mouth, carrier pigeon, etc., both within and without future county, district, area, school, or department conferences and both before and after you have discussed and tried out these materials with the teachers in your district. The success of this project, which is central to the effort to rationalize decisions concerning the very system by which we help our children become good decision makers, is dependent on this input.

PROGRAM GOALS

LANGUAGE ARTS PROGRAM GOALS

14. General

The student will be able to:

14-1 Comprehend the printed material needed to succeed in his educational programs, to satisfy his personal interests, and to meet his social obligations.

14-2 Interpret literature as a reflection of the life and values of this and other cultures.

14-3 Understand how literature is and has been used to communicate ideas, attitudes, and moods by different men in different societies.

14-4 Demonstrate ability to use and to evaluate the use of those conventions of writing by which the quality of literature is commonly judged.

14-5 Demonstrate ability to use and evaluate the use of those techniques and conventions of speech by which the quality of speaking is commonly judged.

14-6 Respect and remain open-minded about the ideas and work of others.

14-7 Correctly apply the conventions of English grammar and usage in speaking and writing.

14-8 Demonstrate knowledge of language variations that exist within the United States and the origins and characteristics of different language forms.

14-9 Vary his speech and writing according to different purposes, audiences, forms of communication, and discussion situations.

14-10 Express himself orally and in writing with clarity and imagination.

14-11 Write legibly and spell accurately.

14-12 Acquire and interpret information through reading, listening, and viewing.

14-13 Punctuate and capitalize correctly.

LANGUAGE ARTS PROGRAM GOALS

99. Reading

The student will be able to:

99-1 Demonstrate a knowledge of the decoding process.

- a. Decode printed words into spoken words on the basis of regular (linguistic) sound-spelling relationships.
- b. Identify letters, numbers, and symbols.
- c. Recognize exceptional (sight) words.
- d. Demonstrate a knowledge of structural analysis.
- e. Interpret punctuation.

99-2 Demonstrate vocabulary growth consistent with ability.

- a. Demonstrate horizontal vocabulary growth.
- b. Demonstrate vertical vocabulary growth.
- c. Apply knowledge of dictionary skills.
- d. Derive meaning of unknown words from their contextual association.
- e. Understand figurative, imaginative, regionalisms, or other nonliteral language.

99-3 Demonstrate comprehension of explicitly stated information.

- a. Comprehend literal meaning of what is written.
- b. Follow specific directions in written material.
- c. Recognize and organize facts and details.

99-4 Demonstrate comprehension of implicit meaning.

- a. Predict outcomes.
- b. Reason logically from inferences in material read.
- c. Perceive the structure of what is read.
  - (1) State the main or central thought.
  - (2) See relationships and draw conclusions.

99-5 Demonstrate interpretive and appreciative reading skills.

- a. Demonstrate sensing the intent and purpose of the author.
- b. Be able to judge the mood or tone of the material.
- c. Explain the literary device used by the author.
- d. Evaluate what is read.
- e. Differentiate between fact, opinion, and bias.

99-6 Demonstrate ability to adjust reading rate to the demands of the material.

- a. Scan for specific information.
- b. Skim an entire selection.
- c. Demonstrate an ability to read in phrases.
- d. Demonstrate knowledge of locational skills.

99-7 Demonstrate oral reading skills commensurate with silent reading skills.

- a. Keep eye ahead of voice.
- b. Enunciate clearly and pronounce correctly.
- c. Read in thought units.
- d. Adapt voice to size of room and audience.
- e. Vary pitch and voice.

TAXONOMY

LANGUAGE ARTS - TAXONOMY

1 Language

1.1 Words and symbols

1.11 Nature of symbols

1.12 Nature of communication

1.13 Types of words

1.131 Generality
1.132 Connotation and denotation

1.14 Semantic fallacies

1.141 Propaganda

1.2 Grammar

1.21 Parts of speech

1.211 Nouns
1.212 Pronouns
1.213 Verbs
1.214 Adjectives
1.215 Adverbs
1.216 Prepositions
1.217 Conjunctions
1.218 Articles
1.219 Interjections

1.22 Sentences

1.221 Subject
1.222 Predicate
1.223 Complement
1.224 Verbal
1.225 Phrase
1.226 Clause

1.3 Transformation Grammar

1.30 Transformational grammar

1.31 Characteristics and purposes

1.32 Components of transformational grammar

1.33 Rules

1.331 Phrase structure rules
1.332 Transformational rules
1.333 Phonological rules

1.34 Parts of speech

1.4 Origin and history of words

1.41 Origin of language

1.42 Language change

1.421 Etymology
1.422 Standardization of language
1.423 Word formation

1.43 Lexicography

1.44 History of English

1.441 Borrowing
1.442 Historical events

1.5 Usage, dialects

1.51 Significance of dialect

1.52 Standard usage

1.521 Modern attitudes toward usage
1.522 Examples of standard usage

1.53 Regional dialect

1.54 Idioms, slang, jargon

1.6 Use of references and resource works

- 1.61 References and resource works
    - 1.611 General information
    - 1.612 Library and instructional materials center skills
    - 1.613 Terminology and abbreviations
    - 1.614 Cross referencing and key words
    - 1.615 Reference work format
    - 1.616 Reliability and completeness of reference works
    - 1.617 Uses of English and general reference works
- 1.62 Dictionaries
    - 1.621 Kinds of dictionaries
    - 1.622 Usage terms and abbreviations
    - 1.623 Locating words
    - 1.624 Helps pronunciation
    - 1.625 Understanding definitions
    - 1.626 Understanding of word and meaning derivation
    - 1.627 Correct spelling source
    - 1.628 Special dictionary sections
- 1.63 Encyclopedias
- 1.64 Other sources of information

1 7 Phonology

- 1.71 Phonemes - segmental
    - 1.711 Phonemes - stress, pitch, and juncture
    - 1.712 Morphemes
    - 1.713 Phonetic irregularities
- 1.72 Consonants
- 1.73 Vowels
- 1.74 Rhyming
- 1.75 Contractions
- 1.76 Printing devices

1.8 Non-verbal communication

2 Literature

- 2.1 Genres, types, forms
  - 2.10 History
    - 2.101 Genre
    - 2.102 Oral and written origins
    - 2.103 Movements and traditions
  - 2.11 Terminology
  - 2.12 Folk literature
    - 2.121 Myths
    - 2.122 Folk tales
    - 2.123 Fables
    - 2.124 Parables
    - 2.125 Legends
    - 2.126 Tall tales
  - 2.13 Short story
    - 2.131 Purpose
    - 2.132 Conventions
  - 2.14 Novel
    - 2.141 Types
    - 2.142 Conventions
  - 2.15 Drama
    - 2.151 Definition
    - 2.152 History
    - 2.153 Type
    - 2.154 Conventions
    - 2.155 Production
  - 2.16 Biography
  - 2.17 Essays and letters
    - 2.171 Essays
    - 2.172 Letters
  - 2.18 Poetry
    - 2.181 Definition
    - 2.182 Concepts
    - 2.183 Type--Conventions

2.19 Sub-genre

2.191 Children's literature
2.192 Fantasy
2.193 Science fiction
2.194 Mystery

2.2 Use and choice of language in Literature

2.21 Style

2.22 Figurative language

2.221 Characteristics of figurative language
2.222 Varieties of figurative language

2.23 Tone

2.231 Characteristics of tone
2.232 Varieties of tone

2.24 Setting

2.25 Mood

2.26 Point of view

2.27 Sound

2.28 Symbols and image

2.3 Content

2.31 The influence of Literature on society

2.32 The influence of society on Literature

2.33 The individual and society in Literature

3 Reading

3.1 Readiness, pre-reading skills

3.11 Physical readiness

3.111 Motor skills
3.112 Visual perception
3.113 Auditory perception
3.114 Visual memory

3.12 Mental readiness

- 3.121 Identify concepts
- 3.122 Categorize and classify
- 3.123 Sequence

3.2 Decoding

3.21 Symbols into sounds and meaning

- 3.210 Phonetics - symbols and sounds
- 3.211 Writing systems
- 3.212 Alphabetical ordering systems
- 3.213 Word structure system

3.3 Vocabulary building and meaning

3.31 Definition

- 3.311 Contextual and picture clues to meaning
- 3.312 Dictionary use
- 3.313 Roots, affixes, compounds
- 3.314 Analogies

3.32 Expanding vocabulary

- 3.321 Roots and affixes
- 3.322 Compounds
- 3.323 Synonyms, antonyms, homonyms and acronyms
- 3.324 Idioms
- 3.325 Malapropisms
- 3.326 Abstract words

3.33 Context

3.4 Comprehension

3.41 Increasing comprehension

3.42 Grasping the main idea

3.43 Supporting detail

3.44 Sequencing

3.45 Classifying

3.46 Following directions

3.47 Summarizing, synthesizing, outlining

3.5 Interpretation

3.51 Meaning

3.52 Prediction

3.53 Literary value

3.54 Techniques of analysis

3.541 Clues
3.542 Character
3.543 Effects
3.544 Setting

3.55 Author and point of view

3.56 Values and attitudes

3.57 Emotions

3.58 Logic

3.6 Purpose for reading

3.61 Reading for pleasure

3.62 Reading for information

3.63 Reading for communication

3.64 Reading for self-knowledge and development

3.7 Reading efficiency

3.71 Mechanics of reading

3.711 Vocalization
3.712 Eye span
3.713 Word attack skills
3.714 Sight vocabulary

3.72 Comprehension skills

3.73 Visual perception

3.8 Oral reading

3.81 Voice - Pitch and modulation

3.82 Smoothness of phrasing, enunciating, pronouncing, rate

3.83 Relation to audience: tone, expression, voice inflection

3.831 Listening and watching for feedback

4 Writing

4.1 Mechanics of writing

4.11 Handwriting

4.12 Spelling

4.121 Learning - Proofreading, dictionary, rules, accuracy, systems
4.122 Plurals
4.123 Homonyms
4.124 Affixes
4.125 Syllables
4.126 Abbreviations
4.127 Contractions

4.13 Punctuation

4.131 Linking - Semicolon, colon, dash, and hyphen
4.132 Separating - Period, question mark, exclamation mark, comma
4.133 Enclosing - Commas, dashes, parentheses, brackets, quotation marks
4.134 Indicating omissions - Apostrophe and ellipsis
4.135 Indicating possessives and plurals
4.136 Underlining

4.14 Capitalization

4.141 Proper nouns, adjectives, and pronoun
4.142 Sentences, phrases and titles

4.2 Forms of written communication

4.21 Major forms

4.211 Biography, autobiography
4.212 Exposition
4.213 Descriptive writing
4.214 Persuasive writing
4.215 Reports
4.216 Summary and outlining

4.22 Literary analysis

4.221 Reviews

4.23 Creative writing

4.231 Poetry
4.232 Fantasy
4.233 Stories and drama
4.234 Satire

4.24 Research paper

4.241 Note taking and journals

4.25 Business writing

4.251 Business letters
4.252 Personal business communications
4.253 Miscellaneous business communications

4.26 Journalism

4.27 Social communication

4.3 Using writing as means of self-expression

4.4 Use and choice of language, conventions, and devices in achieving effects

4.41 Style

4.42 Tone and mood

4.43 Word choice

4.44 Point of view

4.45 Images and symbols

4.46 Figures of speech

4.461 Simile and metaphor
4.462 Hyperbole
4.463 Personification
4.464 Other figures of speech

4.47 Sound effects

4.48 Parody

4.5 Organization

4.51 Form and structure of sentences

4.52 Processes and techniques of writing

4.521 Invention - Choosing topic and generating ideas
4.522 Organization
4.523 Methods of development
4.524 Paragraphs
4.525 Logical development
4.526 Proofreading and revision

4.6 Purpose

5 Speaking

- 5.1 Mechanics of speaking
    - 5.11 Using and controlling the voice
    - 5.12 Using and controlling the body
- 5.2 Forms of oral communication
    - 5.21 Show and tell
    - 5.22 Storytelling
    - 5.23 Drama
    - 5.24 Discussion
    - 5.25 Interview
    - 5.26 Debate
- 5.3 Use of speech as a means of self-expression
    - 5.31 Attitudes
    - 5.32 Dramatic oral communication
    - 5.33 Oral interpretation
- 5.4 Use and choice of language, conventions and devices in achieving effects
- 5.5 Organization (See 4.52)
- 5.6 Purpose

6 Listening

- 6.1 Mechanics or techniques of listening
- 6.2 Orients own experience
- 6.3 Knowledge of words and language
- 6.4 Interaction
- 6.5 Comprehension

Course Goals in Language Arts
Grades K-12

Language Arts

1 Language
1.1 Words and Symbols

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.11 Nature of Symbols			
The student knows that universal symbols are shared by all people because they are associated with experiences shared by all people (e.g. skull as a symbol of death).	K	14-10	U
The student knows that "accidental symbol" is a symbol that has meaning for an individual because it is associated with a particular experience and is not necessarily shared by other people.	K	14-1,10	U
The student understands that a symbol may be a sound, word or phrase, an object (the Flag), or behavior (e.g. a military salute).	K	14-1,12	U
The student understands that a symbol is not the same as the thing it symbolizes.	K	14-1,12	H
The student is able to distinguish between a sign and a symbol on the basis of the fact that a symbol bears an inherent relation to what it signifies (e.g. clenched fist as a symbol of revolution) whereas a sign has only an arbitrary relation to its significate (e.g. the number on a football jersey).	P	14-10	H
The student understands the purposes served by words in communication-the need for conventions and definitions which ideally mean the same thing to one person as to another.	K	14-1,12	P

Language Arts

1 Language
1.1 Words and Symbols

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.12 Nature of Communication The student knows that referents (the objects referred to by words) are sometimes not shared in common or similtaneously by sender and receiver of the intended communication.	K	14-1,12	I

Language Arts

1. Language
1.1 Words and Symbols
1.13 Types of Words

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.131 Generality The student knows that words denote different levels of generality, that words in a like class can be arranged in a scale from general to specific.	K	14-1,12	I

Language Arts

1 Language
1.1 Words and Symbols
1.13 Types of Words

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.132 Connotation and Denotation			
The student knows that words can be and are used to evoke favorable, unfavorable or neutral emotions.	K	14-4,5	I
The student knows that word connotations (emotive, loaded, color, provocative words) are used to evoke favorable, unfavorable or neutral attitudes.	K	14-4,5	U
The student is able to distinguish a word's denotation (primary dictionary meaning) and its connotations (emotional meaning).	P	14-4,5	U

Language Arts

1 Language
1.1 Words and Symbols

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.14 Semantic fallacies The student is able to recognize the following semantic fallacies in reading and listening: a) over-generalization-making a general statement that is not true for all members of a class (also hasty or sweeping generalization), b) false analogy-comparing two things that do not relate at the crucial points, c) unverifiable referent-failing to specify the antecedent of a pronoun, d) confusing facts.	P	14-12	U

Language Arts

1 Language
1.1 Words and Symbols
1.14 Semantic fallacies

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.141 Propaganda			
The student knows that the devices used by propagandists may be classified under two general headings: deliberate misuse of language and deliberate distortion of logic (false meaning).	K	14-12	I
The student knows that the false reasoning devices used by the propagandist are: the testimonial, the unproved assertion, ascribing the wrong cause to an effect, begging the question, the straw man, generalizing from insufficient evidence and band wagon.	K	14-12	I
The student knows that the propagandist uses the following deliberate misuse of language devices: loaded words, name calling, and slogans.	K	14-12	I
The student is able to recognize propaganda appeals and the plausible motives for such appeals.	P	14-12	U

Language Arts

1 Language
1.2 Grammar
1.21 Parts of Speech

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.211 Nouns			
The student knows that proper nouns name particular persons, places, or things and are capitalized.	K	14-7	I
The student is able to distinguish common nouns (bell, book, candle) from proper nouns (Portland, Buick, John).	P	14-7	I
The student is able to use common nouns and proper nouns appropriately in sentences.	P	14-7	I
The student knows that collective nouns are nouns that name groups such as team, head, class.	K	14-7	I
The student knows that nouns have singular and plural form.	K	14-7	P
The student is able to recognize singular and plural forms of the same noun in sentences.	P	14-7	P
The student is able to use singular and plural nouns appropriately in sentences.	P	14-7	I
The student is able to recognize in sentences nouns that have regular plural forms, irregular plural forms, and identical singular and plural forms.	P	14-7	I
The student is able to distinguish the possessive noun from the basic noun form in both singular and plural words.	P	14-7	I
The student is able to recognize the possessive singular and plural form of nouns in sentences.	P	14-7	I
The student is able to use the possessive singular and plural of nouns in sentences.	P	14-7	I

Language Arts

1 Language
1.2 Grammar

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.21 Parts of Speech			
The student knows the function of the parts of speech in sentences.	K	14-7	U
The student knows that parts of speech are determined by position, inflection and function.	K	14-7	U
The student is able to identify the following parts of speech: noun, verb, adjective, adverb, preposition, conjunction, pronoun, interjection.	P	14-7	I
The student is able to use nouns, pronouns, verbs, adverbs, adjectives, conjunctions, interjections, and prepositions appropriately in sentences.	P	14-7	I
The student knows that a word's inflection can identify its part of speech	K	14-7	U
The student knows that one can determine whether a word is a noun, adjective, or a verb through its stress.	K	14-7	U
The student knows that some words convey meaning in sentences (lexical) and others provide syntactic organization (function) in sentences.	K	14-7	H

Language Arts

1 Language
1.2 Grammar
1.21 Parts of Speech

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.211 Nouns (cont.)			
The student is able to recognize the plural and possessive forms of compound nouns.	P	14-7	I
The student knows that concrete nouns denote things perceivable by the senses (house, dog) and that abstract nouns denote things not perceivable by the senses (freedom, honesty).	K	14-7	P
The student knows that determiners, possessives, and adjectives qualify and signal the presence of a noun in a word group.	K	14-7	U
The student knows the characteristic noun suffixes--age, acy, al, arce, ence, ant, ard, dom, er, or, ery, hood, ing, ion, sion, tion, ism, ity, ment, ness, ship, th, ty, ure.	K	14-7	I
The student is able to recognize nouns by their characteristic suffixes, such as tion, nent, and ness.	P	14-7	I
The student is able to use a suffix to change a non-noun to a noun.	P	14-7	I
The student knows that a noun can function as a subject of a verb, object of a verb, indirect object, object of a preposition, etc.	K	14-7	H
The student is able to use sentences having nouns as subjects, direct object, and object of a preposition.	P	14-7	U

Language Arts

1 Language
1.2 Grammar
1.21 Parts of Speech

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.212 Pronouns			
The student knows that pronouns function in word groups as subjects, direct objects, indirect objects, predicate compliments, possessive adjective, and objects of prepositions.	K	14-7	U
The student is able to use pronouns appropriately as subjects, direct objects, indirect objects, predicate compliments, possessive adjectives and objects of prepositions in writing sentences.	P	14-7	U
The student knows that a pronoun can be substituted for a noun.	K	14-7,10	P
The student knows that a pronoun can take any position in a word group that a noun takes.	K	14-7	P
The student is able to recognize the following types of pronouns: personal, demonstrative, relative, interrogative, reflexive, indefinite.	P	14-7	U
The student knows that pronouns agree with their antecedent (referents) in number and gender.	K	14-7	U
The student is able to use sentences whose pronouns have specific antecedents (referents).	P	14-7	U
The student knows that possessive pronouns may be used to modify a noun.	K	14-7	U
The student is able to recognize the possessive case pronoun.	P	14-7	U
The student is able to use possessive case pronouns appropriately in sentences.	P	14-7	U

Language Arts

1 Language
1.2 Grammar
1.21 Parts of Speech

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.212 Pronouns (cont.)			
The student is able to recognize the nominative case pronouns.	P	14-7	U
The student is able to use nominative case pronouns appropriately in sentences.	P	14-7	U
The student knows that the nominative or possessive forms of the pronoun follows a linking verb.	K	14-7	U
The student is able to recognize the objective case pronouns.	P	14-7	U
The student is able to use objective case pronouns appropriately in sentences.	P	14-7	U
The student is able to use appropriate pronoun case forms.	P	14-7	U
The student is able to recognize the plural forms of objective pronouns.	P	14-7	U
The student is able to use plural forms of objective pronouns appropriately in sentences.	P	14-7	U
The student is able to recognize the plural forms of nominative pronouns.	P	14-7	U
The student is able to use plural forms of nominative pronouns appropriately in sentences.	P	14-7	U
The student is able to recognize the plural forms of possessive pronouns.	P	14-7	U
The student is able to use the plural forms of possessive pronouns appropriately in sentences.	P	14-7	U
The student knows that demonstrative, possessive, interrogative, and indefinite pronouns can function as adjectives	K	14-7	U

1 Language
1.2 Grammar
1.21 Parts of Speech

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.212 Pronouns (cont.)			
The student knows that objective forms of pronouns are used as objects of verbs, verbals, and prepositions.	K	14-7	U
The student is able to use the objective form of a pronoun in prepositional phrases.	P	14-7	H

Language Arts

1 Language
1.2 Grammar
1.21 Parts of Speech

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.213 Verbs			
The student is able to distinguish action verbs from state of being verbs.	P	14-7	I
The student is able to use action verbs and state of being verbs appropriately in sentences.	P	14-7	I
The student knows that substituting verbs gives variety to sentences.	K	14-7	P
The student is able to substitute different verbs in sentences to show variety.	P	14-7	P
The student knows that auxiliary verb is another term for helping verb.	K	14-7	I
The student is able to recognize auxiliary verbs in sentences.	P	14-7	I
The student knows that a transitive verb must be followed by a noun phrase and that an intransitive verb cannot be followed by a noun phrase.	K	14-7	H
The student is able to use the irregular verbs appropriately in sentences.	P	14-7	I
The student knows that "be", "appear", "seen", "taste", and similar words function as linking verbs.	K	14-7	I
The student knows that linking verbs relate nouns or adjectives in the predicate to subject of a sentence.	K	14-7	I
The student is able to use linking verbs appropriately in sentences.	P	14-7	I
The student is able to distinguish a linking verb from auxiliary verbs in a sentence.	P	14-7,10	I

Language Arts

1 Language
1.2 Grammar
1.21 Parts of Speech

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.213 Verbs (cont.)			
The student knows the appropriate and inappropriate verb forms in sentences which have compound subjects joined by and.	K	14-7	U
The student is able to use the appropriate verb form in sentences which have compound subjects joined by and.	P	14-7	U
The student knows the appropriate and inappropriate verb form in sentences which have compound subjects joined by or.	K	14-7	U
The student is able to use the singular verb forms in sentences which have compound subjects joined by or.	P	14-7	U
The student knows that there are verbs that have special forms, that are called singular and plural.	K	14-7	I
The student is able to use appropriate singular and plural verbs with singular and plural subjects.	P	14-7	U
The student knows the appropriate and inappropriate verb form in sentences which have: each, either, one, everyone, and no one as subjects.	K	14-7	U
The student is able to use appropriate verb form in sentences which have: each, either, one, everyone, and no one as subjects.	P	14-7	U
The student knows the appropriate and inappropriate verb forms in sentences which have: few, both, and many as subjects.	K	14-7	U
The student is able to use appropriate verb forms in sentences which have: few, both, and many as subjects.	P	14-7	U

Language Arts

1 Language
1.2 Grammar
1.21 Parts of Speech

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.213 Verbs (cont.)			
The student is able to distinguish verbs from verbals in sentences. (Verbals: derived from verbs and functioning in action ways, e.g, participle, pronoun, infinitive).	P	14-7	H
The student is able to distinguish the active from the passive voice.	P	14-7	U
The student is able to change a verb in the active voice to the passive voice.	P	14-7	U
The student is able to recognize the past and present forms of verbs.	P	14-7	I
The student knows that the final consonant sound of the past tense of regular verbs is either d, ed, or t.	K	14-7	P
The student is able to use appropriate verb form in sentences to show past and present tense.	P	14-7	P
The student knows that tense is found in the first word of the verb phrase and that tense is present or past.	K	14-7	H
The student knows that verb phrases function as predicates.	K	14-7	I
The student is able to use verb phrases appropriately in sentences.	P	14-7	I
The student knows that the number of the subject is not usually changed by a phrase following the subject, e.g., "a group of people."	K	14-7	U

1 Language
1.2 Grammar
1.21 Parts of Speech

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.213 Verbs (cont.)			
The student knows the appropriate and inappropriate verbs in sentences which have phrases following the subject.	K	14-7	U
The student is able to use appropriate verbs in sentences which have phrases following the subject.	P	14-7	U
The student knows that the subjunctive expresses a mood that is contrary to fact or one that states a wish.	K	14-7,10	H
The student is able to use subjunctive moods appropriately in sentences.	P	14-7,10	H
The student is able to recognize the characteristic verb affixes: prefixes--be, en, em, re, with; suffixes--ate, em, ify, ia.	P	14-7	U
The student is able to recognize verbs that have characteristic affixes.	P	14-7	U
The student is able to recognize subject complements in sentences and distinguish those used as predicate nouns from those used as predicate adjectives.	P	14-7,10	U
The student knows the meaning of the words modal and auxiliary in context of the term model auxiliary.	K	14-7	H
The student knows that can, could, may, might, must, ought to, should and would are modal auxiliaries.	K	14-7	H
The student knows that modal auxiliaries express subjuncture ideas and understands the meaning of junction in this context.	K	14-7	H
The student is able to use auxiliary verbs appropriately in sentences.	P	14-7,10	U

Language Arts

1 Language
1.2 Grammar
1.21 Parts of Speech

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.214 Adjectives			
The student knows that adjectives qualify and restrict. Nouns ("car", "red car") and pronouns ("me", "poor me").	K	14-7	I
The student is able to use adjectives to qualify and restrict nouns and pronouns.	P	14-7	I
The student knows that the position of an adjective determines its function.	K	14-7	U
The student is able to use adjectives which follow the words they modify.	P	14-7	U
The student is able to use adjectives which precede the word they modify.	P	14-7	U
The student is able to expand sentences by adding adjectives.	P	14-10	P
The student is able to provide adjectives to make sentences more descriptive.	P	14-10	P
The student knows the positive, comparative, superlative forms of adjectives.	K	14-7	U
The student is able to use the positive, comparative and superlative forms of adjectives appropriately.	P	14-7	U
The student knows that proper adjectives are formed from proper nouns-"English" from "England".	K	14-7	U
The student is able to use proper and common adjectives appropriately in sentences.	P	14-7	U

Language Arts

1 Language
1.2 Grammar
1.21 Parts of Speech

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.214 Adjectives (cont.)			
The student knows that indefinite, possessive and demonstrative pronouns can function as adjectives.	K	14-7	H
The student is able to use indefinite, possessive and demonstrative pronouns appropriately in sentences.	P	14-7	H
The student knows that certain words may be changed to adjectives by adding suffixes such as -ful and -ous.	K	14-7	U

Language Arts

1 Language
1.2 Grammar
1.21 Parts of Speech

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.215 Adverbs			
The student knows that adverbs modify verbs, adjectives, adverbs, and whole clauses or sentences.	K	14-7,9,10	I
The student is able to use adverbs appropriately in sentences.	P	14-7	I
The student knows that adverbs can be derived from adjectives (i.e., pretty, prettily).	K	14-7	P
The student is able to recognize adverbs by their endings (ly, er, est).	P	14-7	I
The student knows that prepositional phrases can function as adverbs.	K	14-7	H
The student is able to use prepositional phrases adverbially.	P	14-7	H
The student knows the comparative and superlative forms of adverbs.	K	14-7	U
The student is able to use comparative and superlative forms of the adverb appropriately in sentences.	P	14-7	U
The student knows that adverbs are movable within the sentence.	K	14-7,9,10	U
The student knows that manner adverbs answer the question "how, place adverbs the question "where", and time adverbs the question "when".	K	14-7	U
The student is able to recognize adverbs of time, place, manner, and degree.	P	14-7	U
The student is able to use adverbs of time, place, manner and degree appropriately.	P	14-7	U

Language Arts

1 Language
1.2 Grammar
1.21 Parts of Speech

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.216 Prepositions			
The student knows that a preposition is a word used to show the relationship of a noun or a pronoun to some other word in the sentence.	K	14-7	U
The student is able to recognize common prepositions.	P	14-7	U
The student is able to use prepositions appropriately in sentences.	P	14-7	U
The student knows that the noun or pronoun following a preposition is the object of the preposition.	K	14-7	U
The student knows that prepositional phrases function as adjective or adverb modifiers in a sentence.	K	14-7	U
The student is able to use prepositional phrases as modifiers appropriately in sentences.	P	14-7	U

Language Arts

1 Language
1.2 Grammar
1.21 Parts of Speech

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.217 Conjunctions			
The student knows that conjunctions join words, phrases, and clauses. (e.g., and, or, but, yet, so, nor, for)	K	14-7	U
The student is able to use conjunctions to join words, phrases and clauses.	P	14-7	I
The student is able to use conjunctions appropriately in sentences.	P	14-7	I
The student knows that coordinating conjunctions join like or equal elements of a sentence.	K	14-7	U
The student knows the common coordinating conjunctions: and, but, for, or, nor, so, and yet.	K	14-7	H
The student knows that subordinate conjunctions join a dependent element of a sentence to an independent element.	K	14-7	U
The student knows the subordinating conjunctions, such as because, since, and although.	K	14-7	H
The student knows that correlative conjunctions combine to show relationships between sentence elements and are separated by one of these elements.	K	14-7	H
The student knows the common correlative conjunctions: neither, nor; either, or; not only, but also; and whether, or.	K	14-7	U

Language Arts

1 Language
1.2 Grammar
1.21 Parts of Speech

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.218 Articles			
The student is able to use the definite and indefinite articles appropriately in sentences.	P	14-7	U
The student knows that articles--(a, an, the, some) signal nouns.	K	14-7	U
The student is able to distinguish the indefinite articles (a, some, an) from the definite determiner (the).	P	14-7	U
The student knows that the words preceding nouns are called determiners and that they include pre-articles (some of, several of), articles (a, an, the, some), demonstratives (these, those), and numbers (three people).	K	14-7	U

Language Arts

1 Language
1.2 Grammar
1.21 Parts of Speech

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.219 Interjections			
The student knows that an interjection is a word or phrase which expresses emotion and has no grammatical relation to other words in a sentence.	K	14-7	U
The student knows that an exclamation point makes an emphatic interjection and a comma a mild interjection.	K	14-7	U
The student is able to use interjections appropriately in sentences.	P	14-7	U

Language Arts

1 Language
1.2 Grammar

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.22 Sentences			
The student is able to recognize the basic elements of the sentence - subject, predicate and complement	P	14-7	I
The student knows that a complete sentence is composed of two parts - a noun part (subject) and a verb part (predicate).	K	14-7,10	I
The student is able to distinguish complete sentences from incomplete sentences (in answering questions).	P	14-10	P
The student is able to distinguish groups of words that are sentences from those that are not.	P	14-7,9,10	I
The student is able to change phrases and sentence fragments into complete sentences.	P	14-7,10	U
The student knows that sentences may be classified by their general structure: basic (simple), compound, complex, and compound-complex.	K	14-7	U
The student knows that a basic (simple) sentence is a simple declaring statement with little or no modification and no compounding.	K	14-7,9,10	P
The student is able to use a basic sentence appropriately.	P	14-7,9,10	I
The student knows that a compound sentence is the simple construction of two or more basic sentences.	K	14-7	I
The student is able to use a compound sentence.	P	14-7	U
The student knows that a complex sentence has at least one subordinate clause.	K	14-7	U

Language Arts

1 Language
1.2 Grammar

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.22 Sentences (cont.)			
The student is able to distinguish affirmative statements from negative statements.	P	14-9	P
The student is able to change affirmative statements to negative.	P	14-9	P
The student knows that sentences may be classified by purpose: declarative, imperative, interrogative, exclamatory.	K	14-7	U
The student is able to use declarative, imperative, interrogative, and explanatory sentences.	P	14-7	U
The student knows the function of inverted word order in the sentence, in questions.	K	14-7	U
The student is able to use inversion when constructing questions.	P	14-7	U
The student knows that contractions are generally used in negative questions.	K	14-7	U
The student is able to use the appropriate contraction in negative questions.	P	14-7	U
The student is able to distinguish an affirmative or negative question from an affirmative or negative declarative statement.	K	14-7	U
The student is able to use the affirmative or negative question and the affirmative or negative declarative statement appropriately.	P	14-7	U
The student knows that sentences may be changed by expansion, substitution, deletion, and re-arrangement of sentences.	K	14-7,10	U
The student is able to build sentences through expansion, substitution, reduction, and rearrangement.	P	14-7,10	U

Language Arts

1 Language
1.2 Grammar

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.22 Sentences (cont.)			
The student is able to correct run-on sentences.	P	14-7,10	U
The student knows the importance of word order in the English language.	K	14-7	P
The student is able to vary the word order of sentences.	P	14-7	P
The student is able to use a variety of sentence patterns.	P	14-7	I
The student is able to recognize compound subjects and compound predicates in sentences.	P	14-7	I

Language Arts

1 Language
1.2 Grammar
1.22 Sentences

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.221 Subject			
The student is able to recognize the subject of a sentence.	P	14-7	P
The student knows that the subject of a sentence consists of a noun phrase.	K	14-7	I
The student knows the sentence patterns: N-V, N-V-N, N-V-N-N, N-V-adv., N-lv-N, N-lv-adj.	K	14-7	H
The student is able to write sentences which conform to the basic sentence patterns.	P	14-7,10	H

Language Arts

1 Language
1.2 Grammar
1.22 Sentences

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.222 Predicate			
The student knows that subject and predicate are the two basic parts of a sentence.	K	14-7	I
The student knows that the predicate of a sentence consists of a verb phrase.	K	14-7	I

Language Arts

1 Language
1.2 Grammar
1.22 Sentence

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.223 Complement			
The student knows that complements are verb completes that refer to the subject (predicate noun, predicate pronoun, predicate adjective) or receive the action of the verb (direct objects, indirect objects).	K	14-7	U
The student is able to use object complements appropriately in sentences.	P	14-7	U
The student is able to use subject complements appropriately in sentences.	P	14-7	U

Language Arts

1 Language
1.2 Grammar
1.22 Sentence

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.224 Verbal			
The student knows that verbals are forms of verbs that function as other parts of speech.	K	14-7	I
The student is able to use the various forms of verbals appropriately in sentences.	P	14-7	I
The student is able to recognize the three types of verbals--gerunds, participles, and infinitives.	P	14-7	H
The student knows that while verbals assume functions of nouns, adjectives, and adverbs they retain the verb's ability to have subjects and objects.	K	14-7	H
The student is able to recognize infinitives in sentences and the parts of speech they represent.	P	14-7	H
The student is able to write sentences in which an infinitive functions as a noun.	P	14-7	H
The student is able to write sentences in which an infinitive functions as an adjective.	P	14-7	H
The student is able to write sentences in which an infinitive functions as an adverb.	P	14-7	H
The student knows that gerunds are formed by adding "ing" to the root form of the verb.	K	14-7	H
The student knows that gerunds can assume any noun function.	K	14-7,10	H
The student is able to use gerunds appropriately in sentences.	P	14-7	H

Language Arts

1 Language
1.2 Grammar
1.22 Sentence

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.224 Verbal (cont.)			
The student knows that whenever the gerund has a subject it is in the possessive case.	K	14-7	U
The student is able to use the possessive case form of the noun or pronoun before a gerund.	P	14-7	U
The student knows that a participle is a verb form which functions as an adjective.	K	14-7	H
The student knows that in the verb phrase the past participle is formed by changing the form of the root verb (adding -ed, -en, etc.) and by placing "have" before the verb.	K	14-7	U
The student knows that in the verb phrase the present participle is formed by adding -ing to the root verb and by placing a form of "be" before the verb.	K	14-7	U
The student is able to use past and present participles appropriately in sentences.	P	14-7	U
The student knows that infinitives are commonly formed by adding to to the root form of a verb.	K	14-7	U
The student knows that some infinitives are not introduced by "to" although the "to" is implied when omitted.	K	14-7	U
The student is able to distinguish a verb in a verbal which is transitive from one which is intransitive.	P	14-7	U
The student is able to recognize the object of a transitive verbal.	P	14-7	U

Language Arts

1 Language
1.2 Grammar
1.22 Sentence

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.225 Phrase			
The student knows that there are various types of phrases-prepositional, gerund, participial, and infinite.	K	14-7	H
The student knows that a prepositional phrase is a group of words beginning with a preposition and usually ending with a noun or pronoun.	K	14-7	H
The student is able to use prepositional phrases appropriately in sentences.	P	14-7,10	H
The student knows that a prepositional phrase functions as either an adverb or adjective.	K	14-7	H
The student knows that a gerund phrase is made up of a gerund and its complements.	K	14-7	H
The student knows that a gerund phrase may function as a subject of a verb, the object of a verb, the object of a preposition and as a predicate nominative.	K	14-7	H
The student is able to use gerund phrases appropriately in sentences.	P	14-7	U
The student knows that a participial phrase is a group of related words containing a participle in either present or past tense form.	K	14-7	H
The student is able to use participial phrases appropriately in sentences.	P	14-7	H
The student knows that the verb form in a participal phrase may have a complement and may be modified by adverb and adverb phrases.	K	14-7	H

Language Arts

1 Language
1.2 Grammar
1.22 Sentence

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.225 Phrase (cont.)			
The student knows that an infinitive phrase contains an infinitive and its modifiers and complements.	K	14-7	H
The student knows that infinitive phrases are generally used as a noun but also as an adjective or adverb.	K	14-7	H
The student is able to use infinitive phrases appropriately in sentences.	P	14-7	H
The student knows that an appositive phrase is made up of an appositive and its modifiers.	K	14-7	H
The student knows that an appositive is a noun or pronoun that follows another noun or pronoun to identify or explain it.	K	14-7	H
The student is able to use appositive and appositive phrases appropriately in sentences.	P	14-7	H
The student knows that a phrase is a group of words with a specific modifying function not containing a verb and its subject.	K	14-7	H

Language Arts

1 Language
1.2 Grammar
1.22 Sentence

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.225 Phrase (cont.)			
The student knows that a noun phrase may contain several non-nouns (adjective, determiner), but it must contain a noun.	K	14-7	H
The student knows that a constituent of the noun phrase may be a relative or adjective clause.	K	14-7	H
The student is able to write sentences using relative or adjective clauses as constituents of noun phrases.	P	14-10	H
The student knows that number, demonstration, and the pre-article are optional features of the noun phrase.	K	14-7	H
The student is able to write sentences using the optional features of number, demonstration, and the pre-article in the noun phrase.	P	14-7	H
The student knows that a verb phrase contains a verb and optionally a noun phrase or a prepositional phrase.	K	14-7	H
The student is able to write sentences with verb phrases containing noun phrases or prepositional phrases.	P	14-7	H

Language Arts

1 Language
1.2 Grammar
1.22 Sentences

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.226 Clause			
The student knows that a clause is a group of words containing a subject and predicate.	K	14-7	U
The student is able to use clauses appropriately in sentences.	P	14-7	U
The student is able to recognize adjective, adverb, and noun clauses.	P	14-7	U
The student is able to use adjective, adverb, and noun clauses in sentences.	P	14-7	U
The student is able to distinguish a dependent from an independent clause.	P	14-7	I
The student is able to use dependent and independent clauses in sentences.	P	14-7	U
The student knows that subordinate clauses function as nouns, adjectives, or adverbs.	K	14-7	U
The student is able to use subordinate clauses in nominal adjectival and adverbial functions.	P	14-7	U
The student knows that subordinate clauses add variety to sentences.	K	14-7	H
The student is able to use a variety of subordinate clauses in sentences.	P	14-7	H
The student is able to distinguish restrictive dependent clauses from non-restrictive dependent clauses.	P	14-7	H
The student is able to use restrictive dependent clauses and non-restrictive dependent clauses appropriately in sentences.	P	14-7	H

Language Arts

1 Language
1.2 Grammar
1.22 Sentences

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.226 Clause (cont.)			
The student knows that elliptical clauses omit a word or words necessary for complete grammatical construction but not for meaning.	K	14-7	H
The student is able to use elliptical clauses appropriately in sentences.	P	14-7	H

Language Arts

1 Language
1.3 Transformation Grammar

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.30 Transformational Grammar			
The student knows that transformational grammar involves three components: (1) Semantics (The study of word meanings.), (2) syntax (The study of the customary arrangement of words in phrases and sentences.), and (3) phonology (The study of the pronunciation of words).	K	14-7	U

Language Arts

1 Language
1.3 Transformation Grammar

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.31 Characteristics and Purposes			
The student understands that competence is the implicit, unconscious knowledge of grammar that enables a speaker to understand and use the sentences of a language.	K	14-7	U
The student understands that all native speakers of a language possess competence (built-in grammar).	K	14-7	U
The student understands that the rules of grammar are attempts to make competence conscious (explicit).	K	14-7	U

Language Arts

1 Language
1.3 Transformation Grammar

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.32 Components of Transformation Grammar			
The student knows the function of the rules in each of the three components of transformational grammar: (1) semantics (meaning), (2) syntax (rules for parts of a sentence and their relationships), (3) phonology (rules for sound).	K	14-7	U
The student knows that the two parts of the syntax are the surface structure and the deep structure.	K	14-7	U
The student understands that every sentence in a language has an underlying structure--a deep structure--which may be quite different from its surface structure.	K	14-7	U
The student knows that the deep structure contains the lexicon, which specifies the speaker's knowledge of vocabulary in terms of pronunciation, meaning(s), and grammatical features.	K	14-7	U

Language Arts

1 Language
1.3 Transformation Grammar

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.33 Rules The student understands that phrase structure rules and transformational rules describe the orderliness and regularity that lies at the heart of any language.	K	14-7	U

Language Arts

1 Language
1.3 Transformation Grammar
1.33 Rules

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.331 Phrase Structure Rules			
The student knows that phrase structure rules describe basic sentences, which are found in the deep structure.	K	14-7	U
The student understands that basic (or kernel) sentences are simple declarative statements with little modification which are described by phrase structure rules in the deep structure.	K	14-7	U

Language Arts

1 Language
1.3 Transformation Grammar
1.33 Rules

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.332 Transformational Rules			
The student knows that the changes that occur in basic sentences are described by transformational rules.	K	14-7	U
The student understands that the changes that can occur to a basic sentence are called transformations.	K	14-7	U
The student understands that the changes that can occur to a basic sentence are called transformations.	K	14-7	U
The student knows that the changes that occur to a basic sentence(s) in going from deep to surface structure are described by transformational rules.	K	14-7	U
The student knows that the changes that occur in transformations involve parts of sentences being re-arranged, added, substituted, or deleted.	K	14-7	U
The student knows that after all the transformational rules have been applied to a given basic sentence(s), the sentence becomes a surface structure and thus is ready to be pronounced (phonological component).	K	14-7	U

Language Arts

1 Language
1.3 Transformation Grammar
1.33 Rules

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.333 Phonological Rules The student knows that phonological rules describe pronunciation changes that occur when words and parts of words change their context.	K	14-7	I

1 Language
1.3 Transformation Grammar

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.34 Parts of Speech			
The student knows that nouns are defined by their features--characteristics such as number, countability, common and proper, animate and inanimate, human and non-human.	K	14-7	I
The student knows that verbs are defined by their features--characteristic structures that may or must appear with a given verb, e.g., a linking verb may be followed by an adjective.	K	14-7	I

Language Arts

1 Language
1.4 Origin and History of Words

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.41 Origin of Language			
The student knows the major theories of the origin of language: a) Ding-Dong, b) Bow-Wow, c) Pooh-Pooh.	K	14-8	U
The student knows that most European languages were derived from the Indo-European language and that these languages constitute a family of languages.	K	14-8	H
The student knows that because there are no surviving records of the Indo-European language, it has been reconstructed by the comparison of known etymologies of words from different Indo-European languages.	K	14-8	H

Language Arts

1 Language
1.4 Origin and History of Words

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.42 Language Change			
The student knows that language evolution consists of changes in grammar, pronunciation, and vocabulary.	K	14-8	U

Language Arts

1 Language
1.4 Origin and History of Words
1.42 Language Change

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.421 Etymology The student knows that the etymological entry in a dictionary gives a history of a word's meaning and spelling, and the language from which it was derived.	K	14-8	U

Language Arts

1 Language
1.4 Origin and History of Words
1.42 Language Change

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.422 Historical Events The student knows that the dictionary, the printed word, mass media, and population mobility have contributed to the standardization of the English language.	K	14-8	U

Language Arts

1 Language
1.4 Origin and History of Words
1.42 Language Change

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.423 Word Formation			
The student knows that words are formed and the meaning of existing words changed to meet the social and technological needs of a society.	K	14-8	U
The student knows that words have been and are being formed in the following ways: a) blending (chortle from chuckle and snort), b) clipping (piano from pianoforte), c) compounding (buttercup from butter and cup), d) juxtaposition (frame-up), e) affixes (prenatal, truism), f) initials (radar from radio, direction, and ranging) g) onomatopoeia (hiss, giggle, bow-wow), h) back formation (to edit from editor), i) original creation (kodak and jeep).	K	14-8	U

Language Arts

1 Language
1.4 Origin and History of Words

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.43 Lexicography			
The student knows that a dictionary records usage--the words people actually use in characteristic situations.	K	14-1	U
The student knows that no dictionary can record all words in usage at a given time.	K	14-1	U
The student knows that a dictionary is a historical record of words in usage (with the exception of words labelled "archaic") at the time the dictionary is published, and that because of word changes the dictionary is theoretically out-of-date on the day it is published.	K	14-1	U
The student knows that a complete modern dictionary is the work of many people, in contrast to earlier dictionaries which usually were the work of one man.	K	14-1	H
The student knows that the work of lexicographers (especially Samuel Johnson) often reflected their personal prejudices.	K	14-1	H
The student knows that modern lexicographers collect word samples from a wide variety of written and spoken sources over a period of time and make decisions about a word's currency, its common and specialized meanings, and its pronunciation before printing it in a dictionary.	K	14.1	U

1 Language
1.4 Origin and History of Words

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.44 History of English The student knows the three main stages in the history of English (Old English, Middle English, and Modern English), and recognizes the major differences in sound, vocabulary, and grammar.	K	14-8	H

Language Arts

1 Language
1.4 Origin and History of Words
1.44 History of English

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.441 Borrowing The student knows that many words were borrowed from other languages, especially Greek, Latin, and French.	K	14-8	U

Language Arts

1 Language
1.4 Origin and History of Words
1.44 History of English

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.442 Historical Events			
The student knows that the following events (outer history) affected the structure of the English language (inner history): a) Roman invastion of England, b) Germanic tribes invade England, c) power of the medieval church, d) Norman invasion, e) Chaucer's writings, f) invention of the printing press, g) the Renaissance, h) expansion of the British Empire.	K	14-8	U

Language Arts

1 Language
1.5 Usage, Dialects

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.51 Significance of Dialect			
The student knows that each speaker of a language has a dialect (idiolect), a characteristic use of speech in terms of pronunciation, grammar and vocabulary.	K	14-8	U
The student knows that the language of a speech subcommunity is called a dialect.	K	14-8	U
The student knows that a person's dialect (idiolect) may reveal his national and regional origin, his age, his education, and his socio-economic status.	K	14-7,8,9	U

Language Arts

1 Language
1.5 Usage, Dialects

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.52 Standard Usage The student knows the difference between standard and nonstandard usage.	K	14-7	U

Language Arts

1 Language
1.5 Usage, Dialects
1.52 Standard Usage

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.521 Modern Attitudes Toward Usage			
The student knows that appropriateness in usage depends upon the dimensions of time, place, occasion, and audience and that there is therefore no such thing as "absolutely appropriate" or "absolutely inappropriate" usage.	K	14-7	U
The student is able to choose appropriate forms of usage in a variety of situations depending on dimensions of time, place, occasion, and audience.	P	14-7	U
The student knows that usage rules follow (describe) rather than precede (prescribe) the actual usage in speech and writing.	K	14-7	H
The student knows that "appropriateness" and "inappropriateness" are preferable to "right or wrong", "correct or incorrect" in labeling usage items.	K	14-7	U

1 Language
1.5 Usage, Dialects
1.52 Standard Usage

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.522 Examples of Standard Usage			
The student is able to recognize the appropriate form of verbs which are often confused: tear-torn, wear-worn, fall-fallen, swim-swum, do-did.	P	14-7	U
The student is able to use the appropriate forms of the following: tear-torn, wear-worn, fall-fallen, swim-swum.	P	14-7	P
The student is able to recognize run-on sentences, sentence fragments, faulty tense changes, agreement errors, non-parallel constructions as common mistakes in sentence writing.	P	14-7	U

Language Arts

1 Language
1.5 Usage, Dialects

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.53 Regional Dialect			
The student knows how U.S. regional dialects change under the influence of population movement, geographical isolation, and economic development.	K	14-8	U
The student knows the names and locations of the major regional dialect areas in the U.S.--Northern, Midland, and Southern.	K	14-8	U
The student knows the linguistic terminology necessary for the study of dialects and regional literature in the United States.	K	14-2,8	

Language Arts

1 Language
1.5 Usage, Dialects

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.54 Idioms, Slang, Jargon			
The student knows the meaning of the terms colloquialism, slang, and idiom.	K	14-7,8	U
The student knows that jargon is a vocabulary used by speakers in a specific vocation and thus is mainly appropriate for a small audience.	K	14-8,9	H
The student knows that the use of slang may be motivated by a desire for colorful and descriptive language, and may not be appropriate in formal communication.	K	14-8,9	I
The student knows that much slang began as jargon in such vocations as trucking, music, armed services and then expanded to a more general use.	K	14-8,9	U
The student knows that idioms are metaphorical and often ungrammatical.	K	14-8	H

Language Arts

1 Language
1.6 Use of References and Resource Works
1.61 References and Resource Works

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.611 General Knowledge of			
The student knows that primary sources give original information while secondary sources are interpretations of original information.	K	14-1	U
The student knows the major reference works: dictionaries, encyclopedias, specialized dictionaries, Oxford English Dictionary thesarus, atlases, periodicals and their indexes.	K	14-1	U

Language Arts

1 Language
1.6 Use of References and Resource Works
1.61 References and Resource Works

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.612 Library and Instructional Materials Center Skills			
The student knows that a card catalogue is a kind of index which lists alphabetically by title, subject, and author all the books contained in a library.	K	14-1	I
The student knows that the card catalogue provides the following basic information: (1) author's name and birth date (2) place, publisher, and date of publication (3) subject entry (4) call number (5) title entry (6) title (7) pages, illustrations, size (8) technical notes (9) a brief summary of the contents (in some catalogues).	K	14-1	I
The student knows the procedure for checking books and materials in and out of the library correctly.	K	14-1	I
The student knows the organization and location of materials in the instructional materials center.	K	14-1	I
The student is able to use the Dewey Decimal and the Library of Congress system to locate information in the library.	P	14-1	I

Language Arts

1 Language
1.6 Use of References and Resource Works
1.61 References and Resource Works

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.613 Terminology and Abbreviations The student is able to recognize the following abbreviations as they are used in reference works: ibid., loc., cit., op.cit., et. al., etc., f, ff, p, pp, ed, sic., vol.(s).	P	14-1,7,9,10	I

Language Arts

1 Language
1.6 Use of References and Resource Works
1.61 References and Resource Works

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.614 Cross Referencing and Key Words The student knows that there are key words in reference works which may be used to locate additional information on a given subject.	K	14-1	I

Language Arts

1 Language
1.6 Use of References and Resource Works
1.61 References and Resource Works

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.615 Reference Work Format			
The student knows that there are specialized indexes in reference books that list the page numbers of pictures, graphs, and illustrations. (e.g., National Geographic Index)	K	14-1	U
The student knows that books have different formats and that the following conventions in a given book will contain specified information for its use: title page, preface, foreward, tables of contents, guides for use of volume, acknowledgements, footnotes, glossary, indexes, bibliographies, appendixes and supplements.	K	14-1	I
The student knows that a table of contents of a book or magazine indicates the kinds of information and/or stories by title, page number, and author.	K	14-1	I
The student knows the following book parts: (1) frontispiece (2) title page (3) copyright (4) dedication (5) preface, foreward or introduction (6) acknowledgements (7) table of contents (8) list of illustrations (9) text or body (10) bibliography (11) index (12) appendix (13) notes, footnotes, and cross references (14) typographical aids (headings, etc.) (15) glossary.	K	14-1	I
The student knows that the index of a reference work: (1) lists topics alphabetically (2) usually lists sub-topics alphabetically under the main topics (3) lists cross references.	K	14-1	I
The student knows that an index can be utilized effectively by using key words to find entries.	K	14-1	I

1 Language
1.6 Use of References and Resource Works
1.61 References and Resource Works

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.616 Reliability and Completeness of Reference Works			
The student knows that documented reports are supported by references and that undocumented reports are not.	K	14-1	U

1 Language
1.6 Use of References and Resource Works
1.61 References and Resource Works

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.617 Uses of English and General Reference Works			
The student knows that the following reference aids are available for specialized information: maps and globes, tables and lists, charts and graphs, pictures and diagrams, scale drawings and models, time lines and time tables, and footnotes.	K	14-1	I
The student knows which English handbooks are used for guidance in particular matters of English usage.	K	14-1	U
The student knows that writer's manuals, reference books, and style sheets give help with the conventions of punctuation, capitalization, and appearance (spacing and margins).	K	14-1	U
The student knows which of a variety of reference works can be used when gathering information on a given subject.	K	14-1	I

Language Arts

1 Language
1.6 Use of References and Resource Works
1.62 Dictionaries

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.621 Kinds of Dictionaries			
The student knows that the thesaurus is a source for finding synonyms, antonyms and derivatives of a word.	K	14-1	U

Language Arts

1 Language
1.6 Use of References and Resource Works
1.62 Dictionaries

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.622 Usage Terms and Abbreviations			
The student knows that abbreviations are used to indicate a word's part of speech (N=noun, V=verb, Adj=adjective, Adv=adverb) in a dictionary.	K	14-1	I
The student knows that the dictionary records comparative and superlative forms of adjectives under the positive forms.	K	14-1	U

Language Arts

1 Language
1.6 Use of References and Resource Works
1.62 Dictionaries

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.623 Locating Words			
The student knows that alphabetical order and guide words are used in locating words in a dictionary.	K	14-1	I
The student is able to locate words in a dictionary by utilizing guide words and alphabetical order.	P	14-1	I

Language Arts

1 Language
1.6 Use of References and Resource Works
1.62 Dictionaries

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.624 Helps Pronunciation			
The student knows that a dictionary divides words into syllables.	K	14-1	P
The student knows that in a dictionary definitions and synonyms may be located by using cross references.	K	14-1	I
The student knows that the dictionary usually records synonyms and may give antonyms for a given word.	K	14-1	I
The student knows that the dictionary identifies homographs through the placement of stress marks.	K	14-1	I
The student knows that the phonetic spelling may be decoded by using the pronunciation key.	K	14-1	I
The student knows that the most common or preferred definition of a word in the dictionary is listed first.	K	14-1	I
The student is able to distinguish the accent mark (stress) indicating the syllable of primary stress from the accent mark indicating the syllable of secondary stress.	P	14-1,10	I
The student knows that the dictionary records the pronunciation of a word through phonetic spelling and diacritical marks.	K	14-1	I
The student is able to use the phonetic spelling and diacritical marks to pronounce words in the dictionary.	P	14-1	I

Language Arts

1 Language
1.6 Use of References and Resource Works
1.62 Dictionaries

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.625 Understanding Definitions			
The student knows that the dictionary records meanings of entries that are not complete words (prefixes, suffixes, abbreviations).	K	14-1	I
The student knows that the dictionary records many meanings for a word and that only one meaning may be applicable to the context in which the word is used.	K	14-1	I
The student knows that the dictionary may contain the meanings of idiomatic expressions.	K	14-8,10,7	U

Language Arts

1 Language
1.6 Use of References and Resource Works
1.62 Dictionaries

Goal	**Knowledge or Process**	**Program Goal to Which this Goal Contributes**	**Appropriate Initial Instructional Level P/I/U/H**
1.626 Understanding of Word and Meaning Derivation			
The student knows that the different derivations of a word may be recorded under the noun form.	K	14-1	U
The student knows that the dictionary records the etymology or origin of a word.	K	14-1	I
The student is able to interpret an etymological entry in a dictionary.	P	14-1	U

Language Arts

1 Language
1.6 Use of References and Resource Works
1.62 Dictionaries

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.627 Correct Spelling Source The student knows that the dictionary is the most complete and reliable source for obtaining the correct spelling of words.	K	14-11	P

Language Arts

1 Language
1.6 Use of References and Resource Works
1.62 Dictionaries

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.628 Special Dictionary Sections			
The student knows the function of the "Guide to the Dictionary" and the special supplements (geographical locations, foreign and proper names, etc.).	K	14-1	I
The student is able to use dictionary guides and supplements to locate information.	P	14-1	I
The student knows that dictionaries vary in completeness (student desk, Collegiate-Webster, Unabridged)---that common words are recorded in abridged dictionaries, that new words are more likely to be found in more recent unabridged dictionaries, that desk or pocket dictionaries do not usually give etymologies, etc.	K	14-1	I
The student is able to select an appropriate dictionary for his purpose.	P	14-1	I

1 Language
1.6 Use of References and Resource Works

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.63 Encyclopedias			
The student knows that an encyclopedia contains a vast amount of information on a wide range of subjects, usually arranged alphabetically by major topics or sub-topics.	K	14-1	I
The student knows that the most expedient way to locate information in an encyclopedia is by using the index volume rather than the alphabetical volume listings.	K	14-1	I
The student knows that the guide letter or letters on the back of each volume of an encyclopedia indicates the beginning letters of each of the main topics within that volume.	K	14-1	I
The student knows that the encyclopedia lists cross references at the end of each entry.	K	14-1	I

Language Arts

1 Language
1.6 Use of References and Resource Works

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.64 Other Sources of Information			
The student knows that: the Biography Index, Current Biography, the Dictionary of American Biography, the Dictionary of National Biography, Webster's Biographical Dictionary, Who's Who and Who's Who in America are biographical references.	K	14-1	I
The student knows that maps provide information such as: (1) locations and sizes of cities, (2) population density, (3) industries, (4) culture, (5) climate, and (6) topography.	K	14-1	I
The student knows that facts and figures can be economically and clearly presented in charts, graphs, or maps.	K	99-6d	P
The student is able to use charts, graphs and maps to obtain or record information.	P	14-12,99-2 14-1	P
The student knows magazines and newspapers contain information that is recent and surface while textbooks contain information that is permanent and in-depth.	K	14-1	I
The student is able to choose information from magazines, newspapers and textbooks depending upon the depth and purpose needed.	P	14-1	I
The student knows that an index in a newspaper gives the location of specific information by section, title and page.	K	14-1	I

1 Language
1.7 Phonology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.71 Phonemes - Segmental			
The student knows that a phoneme is a significant unit of sound, one that signals a change in meaning as in the initial sounds in "bat" and "cat"--the phonemes /b/ and /c/.	K	14-7	P
The student knows that a phoneme consists of a group of similar sounds, each of which carries the same significance. (Two people may pronounce their r's differently, but the r's are still recognized as r's and not as something else.	K	14-7	P
The student is able to determine the number of phonemes in spoken words.	P	99-8	P
The student knows that there are approximately 44 phonemes in the English language.	K	14-1,7	P

Language Arts

1 Language
1.7 Phonology
1.71 Phonemes - Segmental

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.711 Phonemes - Stress, Pitch, and Juncture			
The student knows that the variations in stress, pitch, and juncture (pause) are phonemic because they signal meanings.	K	14-1,7,10	H
The student is able to distinguish the syllabic stress of a homograph used as a noun from the syllabic stress of the same word used as a verb. (Object' and Ob' ject.)	P	14-1,7 99-1d	I
The student knows that a shift in stress sometimes accompanies a change in the meaning of the word.	K	14-1,7 99-1d	I
The student knows that meanings are partly signaled by intonational clues--stress, pause, and pitch (e.g., the utterance, "This is a silent movie house." can have at least two different meanings according to whether there is a pause between "silent" and "movie" or between "silent movie" and "house").	K	14-1,7,10	I

Language Arts

1 Language
1.7 Phonology
1.71 Phonemes - Segmental

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.712 Morphemes			
The student knows that a morpheme is a significant unit of meaning which consists of one or more phonemes. ("Unfriendly" has three morphemes--un, friend, and ly.)	K	14-1,7	P

Language Arts

1 Language
1.7 Phonology
1.71 Phonemes - Segmental

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.713 Phonetic Irregularities			
The student knows that not all words in the English language follow the phoentic rules (i.e., sight or exceptional words--friend, come, would, where, etc.).	K	14-1,7 99-1c	P
The student knows that variations exist between the number of letters in a word and the number of phonemes they represent.	K	14-1,10,11 99-1d	P

Language Arts

1 Language
1.7 Phonology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.72 Consonants			
The student knows the sounds associated with the following: single consonants, consonant digraphs, consonant blends, common inflections such as "ed", common phonograms or rhyming elements, common affixes, single vowels, and vowel combinations.	K	14-1,99-1d	P
The student is able to use consonant and vowel sounds in their initial, medial, and final positions.	P	14-1,99-1d	P
The student knows that initial consonant sounds may be substituted to form new words--man, pan, fan, etc.	K	14-1,99-1a	P
The student is able to substitute initial consonant sounds to form new words--man, fan, Dan.	P	14-1,7,99-1a	P
The student knows the initial, medial, and final consonant graphemes. (Written representations of sounds.)	K	14-1,99-1d	P
The student knows the sounds of the consonant blends (sh, wh, th, ch, br, cl, str, sch, thr, spr, chr, spl, etc.).	K	14-1,99-1d	P
The student knows the sounds of consonant digraphs. (nk, ck, qu)	K	14-1,99-1d	P
The student knows the sounds or irregular (silent) consonant graphemes- 1. The K is silent in kn (knew, knee) 2. Double consonants--only one is sounded (sum~~m~~er) 3. When vowel i precedes gh, the latter is silent (li~~gh~~t) 4. The w is silent in wr at the beginning of words (~~w~~ring) 5. When t follows s or f, the t is sometimes silent (of~~t~~en, fas~~t~~en) 6. In ck combinations, c is silent (sa~~c~~k, clo~~c~~k) 7. The b is silent in mb at the end of words (com~~b~~, lam~~b~~).	K	14-1,7,99-1d	P

Language Arts

1 Language
1.7 Phonology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.72 Consonants (cont.)			
The student knows the soft sounds of "c" and "g".	K	14-1,99-1d	P

Language Arts

1 Language
1.7 Phonology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.73 Vowels			
The student knows that each syllable in a word has a vowel sound.	K	14-1	P
The student is able to recognize the variability of sound that a vowel or vowel combinations may have in different words (i.e., the "o" in boy, Tom, boat, would, book, row, about).	P	14-1,99-1a	P
The student knows that the sounds of letters in words (context) are affected by these combinations: a) blends, b) varient vowel sounds (ou, ow, oi, oy) c) rhyming patterns, d) vowels affected by "r" (ar, ir, or, er).	K	14-1,99-1d	P

Language Arts

1 Language
1.7 Phonology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.74 Rhyming			
The student knows that rhyming is based upon the sounds of letters at the end of words, i.e., same letters--same sound (night, light) and different letters--same sound (rhyme, time).	K	14-1,7,99-1a	P
The student is able to use (classify) words according to their rhyming structure and/or sound relationship (time, rhyme, night, light).	P	14-1,7,99-1a	P

Language Arts

1 Language
1.7 Phonology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.75 Contractions			
The student knows that contractions are single words formed by combining two words but omitting a letter or letters and adding an apostrophe (do not=don't).	K	14-1,7,9,10, 99-1d	I
The student is able to transform two words into the contracted form.	P	14-7,9,10	I

Language Arts

1 Language
1.7 Phonology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.76 Printing Devices			
The student knows that differences in pitch, stress, and juncture are signaled by the following printing devices: period, question mark, exclamation mark, comma, semi-colon, colon, dash, hyphen, double and single quotation marks, parentheses, ellipses, italics, boldface type, all capital letters, and underlining.	K	14-1,7,10, 99-1e	I
The student is able to decode material using special printing devices which indicate differences in pitch, stress, and juncture.	P	14-1,7,10, 99-a	I

Language Arts

1 Language

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.8 Non-verbal Communication			
The student knows that his posture and gestures communicate meaning to his audience as well as what he says.	K	14-5,10	I
The student is able to use non-verbal communication gestures and facial expessions to make oral communication more descriptive and/or effective.	P	14-5,10	P
The student knows that pictures and objects can be a means of non-verbal communication.	K	14-12	I
The student knows that all art forms express a feeling, attitude or idea.	K	14-12	U
The student is able to use an art form to express a feeling, attitude or idea.	P	14-12	U

Language Arts

2 Literature
2.1 Genres, Types, Forms
2.10 History

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.101 Genre			
The student knows that there is a wide range of excellence in reading materials and knows extreme examples.	K	14-1	I
The student understands that literature is one of the arts; that it is a re-creation in words (comparable to re-creations in paint, stone, and sound) of what it is to be human.	K	14-4	U
The student knows that a book title may function to suggest or to direct toward a main idea or theme, to arouse the reader's curiosity, to establish mood, or to give emphasis.	K	99-4c-1	P
The student knows that the protagonist (hero) is the chief character in a work and that his opponent is called the antagonist.	K	14-4	H
The student understands that the purpose of a character foil is to set off or enhance the protagonist by contrast.	K	14-2	H
The student knows that generally genre differs in the following areas: 1) length, 2) use of prose or verse, 3) use of written or oral language, 4) structure.	K	14-3	I
The student knows that conventions in different genres achieve varying effects even though they deal with similar themes.	K	14-3	H
The student understands that although genres have characteristic form and conventions, a given genre may contain a convention which is usually associated with a different genre, e.g., a novel may contain a philosophical essay and a drama may contain narrative summation.	K	14-2	U

Language Arts

2 Literature
2.1 Genres, Types, Forms
2.10 History

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.101 Genre (cont.)			
The student knows that the writer can either "tell" the reader about a setting or character or "show" him through a description of action.	K	14-4	U

Language Arts

2 Literature
2.1 Genres, Types, Forms
2.10 History

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.102 Oral and Written Origins			
The student knows that primitive man's need to interpret, communicate, and perpetuate experience is expressed in his oral literature.	K	14-3	U
The student knows that most groups of people (tribes, nations, cultures, sub-cultures) have an oral (and often a written) tradition that is peculiar to them.	K	14-2,3	U
The student knows that much of early literature became first formalized orally by bards, minstrels, and story tellers and only later was written down. (e.g., The Illiad, The Odyssey, The DeCameron, Beowulf, etc.).	K	14-3	U
The student knows that the oral literature of each culture evolved as it was converted to written literature, e.g., inconsistencies were reduced, characterizations were made more definitive, and details were added.	K	14-3	H

Language Arts

2 Literature
2.1 Genres, Types, Forms
2.10 History

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.103 Movements and Traditions			
The student understands that literature is a heritage as well as a stimulus for inventive departure and that authors utilize ideas, forms, and language of their predecessors.	K	14-2,3	H
The student knows that the Greeks contributed the epic, lyric, comic, and tragic forms to literature.	K	14-2,3	U
The student knows that the Romans adapted and perpetuated the classical Greek forms of lyric, epic, comic, and tragic literature.	K	14-2,3	U
The student understands that the early medieval church played a major role in the preservation of the literary traditions of Greece and Rome during the Dark Ages.	K	14-2,3	U
The student knows that the revival of classical literature diffused by the technology of printing contributed to the general new spirit of the Renaissance.	K	14-3	U
The student knows that Renaissance literature reflected the humanistic interest in individualism, worldliness, and versatility.	K	14-3,2	H
The student knows that during the seventeenth and eighteenth centuries in Europe writers of the Neo-Classic movement in literature consciously attempted to attain the restraint, polish, and objectivity of the classics.	K	14-2,3	H
The student knows the major types, significant works, important writers, and dominant literary trends of American literature from the Colonial period to modern times.	K	14-3	U

Language Arts

2 Literature
2.1 Genres, Types, Forms
2.10 History

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.103 Movements and Traditions (cont.)			
The student knows that an impetus for the Romantic movement was a revolt against the rigid conventions of Neo-Classicism.	K	14-3,2	H
The student knows that in contrast to the subjective and stylistic excesses of the Romanticists, the Naturalists depicted life with detail and objectivity.	K	14-3	H
The student knows that Naturalism held that man belongs solely to the order of nature and therefore his character and fortunes are determined by heredity and environment.	K	14-3	H
The student knows that early existential writers maintained that the individual creates his own meaning rather than relying upon absolutes; such as pre-destination, universal moral codes, or basic human nature.	K	14-3,2	H
The student knows that Blacks have been making major contributions to American literature for well over one hundred years.	K	14-3	U
The student knows that there is a growing body of Black literature celebrating the distinctive features of the Black experience and embracing all genre (e.g., Claude Brown-Novel, Le Roi Jones-Poetry, James Baldwin-Drama, Eric Van Peebles-Cinema, etc.)	K	14-1	U
The student knows that the Afro-Americans and American Indians have made significant and unique contributions to children's literature.	K	14-2	I

2 Literature
2.1 Genres, Types, Forms
2.10 History

Goal	**Knowledge or Process**	**Program Goal to Which this Goal Contributes**	**Appropriate Initial Instructional Level P/I/U/H**
2.103 Movements and Traditions (cont.)			
The student knows that regional and religious minorities have made significant and unique contributions to children's literature (e.g., Henner's Lydia, Plain Girl, All-of-a-Kind Family, Strawberry Girl, The House Next Door).	K	14-2	I

Language Arts

2 Literature
2.1 Genres, Types, Forms

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.11 Terminology			
The student knows the difference between fiction and nonfiction in their relation to reality.	K	14-4	I
The student is able to distinguish fiction from nonfiction.	P	14-1	I
The student knows the terminology needed to analyze novels and short stories: plot, character, theme, setting, tone, atmosphere, point of view, fiction, nonfiction, allusion, symbol, etc.	K	14-4	U
The student knows the meaning of the terminology needed to analyze and discuss plot development--exposition, initial incident, rising action, conflict, climax, anticlimax, falling action, catastrophe (denouement), foreshadowing, suspense, archetypal experience, etc.	K	14-4	H
The student knows the terminology used to analyze and discuss character: archetypes, motivation, protagonist, antagonist, conflict, flat character, round character, dialogue, character foil, empathy, etc.	K	14-4	H
The student knows the meaning of the terminology needed to analyze and discuss point-of-view: first person, third person, omniscient, etc.	K	14-4	U
The student understands that conflicts between individuals, ideas, and groups motivate actions that then contribute to the plot of a literary work.	K	14-4	I
The student understands how a writer uses incongruities of character, action, and situation to create a humorous atmosphere.	K	14-4	I

2 Literature
2.1 Genres, Types, Forms

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.11 Terminology (cont.)			
The student understands that humor normally arises out of incongruity in character and situation whereas wit normally arises from verbal incongruity.	K	14-4	I
The student knows that dramatic irony describes a situation in which a character expects the opposite of what the audience and other characters know has happened or will happen.	K	14-4	U
The student knows that parody mimics a writer's language and style and often treats a serious subject in a light manner.	K	14-4	H
The student knows that satire attempts to diminish or ridicule human institutions or weaknesses, often in an effort to bring about a change in the condition satirized.	K	14-4	H

Language Arts

2 Literature
2.1 Genres, Types, Forms
2.12 Folk Literature

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.121 Myths			
The student knows that a myth is not a specific literary work but a floating tale common to the members of a tribe, race, or nation.	K	14-2,3	I
The student knows that myths provide imaginative patterns for understanding man and the universe, and they portray man's deepest instincts and needs.	K	14-4	U
The student is able to recognize the differences between 1) the myth and its attempt to explain natural phenomena through the activities of the gods, 2) the fable and its attempt to teach a moral usually through animal characters, and 3) the tall tale and its attempt to entertain through obvious exaggeration.	P	14-4	I
The student is able to write original myths, fables, and tall tales.	P	14-4	U
The student knows the following major motifs of the folktale: 1) rags to riches (Cinderella) 2) enchanted person who must be rescued from spell (Beauty and the Beast), 3) stupid fellow makes good (Ugly Duckling), 4) wicked stepmother (Sleeping Beauty), 5) foreign wife (Jason and Medea).	K	14-4	I

Language Arts

2 Literature
2.1 Genres, Types, Forms
2.12 Folk Literature

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.122 Folk Tales The student understands that similar folktales were invented because men living in different parts of the world at different times faced many of the same challenges.	K	14-2,3	I

Language Arts

2 Literature
2.1 Genres, Types, Forms
2.12 Folk Literature

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.123 Fables			
The student knows that animal stories fall into distinctive groups: animals talking as human, animals as animals that talk, and animals realistically portrayed as animals.	K	14-3	I
The student is able to write animal stories which characterize animals talking as humans, animals talking as animals, or animals objectively stated.	P	14-4	U

Language Arts

2 Literature
2.1 Genres, Types, Forms
2.12 Folk Literature

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.124 Parables			
The student knows that the moral of a parable is implicit while the moral of the fable is explicit.	K	14-2,3	I

Language Arts

2 Literature
2.1 Genres, Types, Forms
2.12 Folk Literature

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.125 Legends The student knows that a legend (e.g., King Arthur and the Knights of the Round Table) is a story or collection of stories handed down through oral tradition and popularly regarded as history.	K	14-4	I

Language Arts

2 Literature
2.1 Genres, Types, Forms
2.12 Folk Literature

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.126 Tall Tales			
The student knows that the tall tale is an American addition to folklore.	K	14-4	I
The student knows that the tall tale builds upon the exploits of a hero through exaggeration of his size, endurance, actions, speech, and importance.	K	14-4	I

Language Arts

2 Literature
2.1 Genres, Types, Forms
2.13 Short Story

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.131 Purpose			
The student knows that short stories deal with characters and plot in a concise manner which involves suspense and surprise.	K	14-3	U
The student knows that the short story deals with a wide variety of plots, character, and themes.	K	14-3	U
The student is able to write a short story containing the following: a) one well-developed character, b) descriptive and narrative paragraphs, c) a conflict over ideas, d) concise plot, e) elements of suspense and surprise.	P	14-4	U
The student understands how the character's point of view and plot are affected in a given short story.	K	14-3	U

Language Arts

2 Literature
2.1 Genres, Types, Forms
2.13 Short Story

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.132 Conventions			
The student knows that in contrast to a novel, the length of a short story restricts the number of conflicts, themes, and fully developed characters, and, generally, the time span portrayed.	K	14-4	U

Language Arts

2 Literature
2.1 Genres, Types, Forms
2.14 Novel

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.141 Types			
The student knows that novels are classified into types by the use of conventions and the author's intentions-historical, regional, sociological, mystery, science fiction, utopian.	K	14-3	H
The student knows the important writers, significant works, and dominant trends in the development of the novel from its first appearance as a literary form to modern times.	K	14-3	H
The student knows that sociological novels emphasize the influence of economic and social conditions on character and action and often make a plea for reform.	K	14-2	H
The student knows that the historical novel utilizes events, people, settings from history and intertwines these elements with fictional material to achieve the desired effects.	K	14-2	U
The student knows that the regional novel and short story emphasize the manner in which character and action are affected by the language, customs, values, and landscape of a particular locality.	K	14-2	U
The student knows the elements of the novel which are commonly utilized in mystery literature--suspense, foreshadowing, surprise ending.	K	14-2	U

Language Arts

2 Literature
2.1 Genres, Types, Forms
2.14 Novel

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.142 Conventions			
The student understands that the conventions, language, and meaning of a novel unite to form an organic whole and that all contribute to the total effect.	K	14-3	H
The student understands the methods by which characterization is accomplished; the character's name, appearance, thought, speech, actions and the author's attitude toward the character.	K	14-2	H
The student knows that in dealing with time in a novel work, a writer may employ: a) a straightforward narrative with passage of time indicated by transitional devices such as "two weeks later," or "the next morning," b) flashbacks signaled by various transitional devices, c) stream-of-consciousness in which literary time approximates "real" time, d) multiple narrators, each narrator covering the same time period from his point of view, e) other more sophisticated methods.	K	14-4	H

Language Arts

2 Literature
2.1 Genres, Types, Forms
2.15 Drama

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.151 Definition			
The student knows that the plot is a system of actions represented in a dramatic work, and that the characters are the people who carry out the action.	K	14-4	I
The student understands that the playwright is limited (e.g., to dialogue, movement, gestures, facial expression, props, and sound effects) in moving the play forward.	K	14-4	U

2 Literature
2.1 Genres, Types, Forms
2.15 Drama

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.152 History			
The student knows that the dramatic tradition embodies a number of elements such as the conditions which gave rise to a theater in a culture, historical influences the role of theater in a society, dramatic forms, important playwrights, and major plays.	K	14-3	H
The student knows that it is believed that drama began as religious ritual and that many dramas still retain some of these primitive vestiges (e.g., use of masks, ritual movements, choral chanting, etc.).	K	14-2	H
The student knows that fatalistic religious belief influenced the themes and plots of early Greek drama.	K	14-2	U
The student knows that the concept of tragedy and the tragic hero has changed significantly during the span from classical to modern times.	K	14-3	H
The student knows that although comedy has universal elements, its forms, subjects, and purposes have undergone changes from one culture to another and from one historical period to another.	K	14-3	H
The student knows that miracle and morality plays were types of medieval verse drama dealing with the progression of man from creation to the last judgment and utilizing Biblical themes.	K	14-2	H
The student knows that the sixteenth century masque was an elaborate form of court entertainment, combining poetic drama, music, song, dance, costuming, and spectacle.	K	14-2	H

2 Literature
2.1 Genres, Types, Forms
2.15 Drama

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.152 History (cont.)			
The student knows the characteristic physical elements (stage, lighting, costume, etc.) of the ancient, Elizabethan, and modern theater.	K	14-4	H
The student knows the major conventions of the Elizabethan theater: stage surrounded on three sides by spectators; main stage not concealed by curtain; sunlight only light; scenery not elaborate; trapdoors in stage, allowing appearance of ghosts, spirits; inner stage concealed by curtains when not in use; second level balcony; third level chamber normally housing musicians; fourth level turret where sound effects were created.	K	14-4	H
The student knows that Shakespeare's historical plays are dramatic renderings of events reported in the chronicles of England and Scotland, etc.	K	14-4	H

2 Literature
2.1 Genres, Types, Forms
2.15 Drama

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.153 Type			
The student knows that a tragedy results in disintegration (disaster, death, disorder) following the unsuccessful moral struggle of the hero.	K	14-4	U
The student knows that comedy achieves integration through the happy and bloodless solution of a problem that has frustrated, embarrassed, or distressed the characters.	K	14-4	U
The student knows that drama is traditionally classified into tragedy and comedy, but that the nineteenth century added the problem play--a mixture of comic and tragic elements, usually dealing didactically with social problems.	K	14-4	U

2 Literature
2.1 Genres, Types, Forms
2.15 Drama

Goal	**Knowledge or Process**	**Program Goal to Which this Goal Contributes**	**Appropriate Initial Instructional Level P/I/U/H**
2.154 Conventions			
The student knows the different types of dialogue: normal conversation, soliloquy, banter, stichomythia (witty "ping pong").	K	14-4	U
The student understands that cause-effect relationships make a play dramatic rather than merely episodic in structure, i.e., that there are important relationships among the actions of a play.	K	14-4	H
The student is able to recognize archetypes and archetypal experiences in drama: journeys, initiation, scapegoat, outsider, and rebel.	P	14-4	H
The student knows the meaning of "deus ex machina"--The too convenient rescue of a character or situation.	K	14-4	H
The student knows that social or group pressure affects the behavior of characters in the play.	K	14-4	U
The student knows that exposition in a drama furnishes information essential to understanding the basis of the conflicts.	K	14-4	U
The student knows that the classical unities of time, place, and action require a drama to take place within twenty-four hours in a single place and to involve a single plot.	K	14-4	H
The student knows that classical unities of time, place, and action contribute to the play's credibility but are often violated to achieve different effects--in-depth development of character, flashbacks, projection into the future, change in setting.	K	14-4	H

Language Arts

2 Literature
2.1 Genres, Types, Forms
2.15 Drama

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.154 Conventions (cont.)			
The student knows that a scene is a subdividsion of an act, and that each scene consists of a unit of action in which there is no change of place or break in the continuity of time.	K	14-4	U
The student is able to recognize that an act is a major division of the action of a play.	P	14-4	U

2 Literature
2.1 Genres, Types, Forms
2.15 Drama

Goal	**Knowledge or Process**	**Program Goal to Which this Goal Contributes**	**Appropriate Initial Instructional Level P/I/U/H**
2.155 Production The student is able to distinguish those features of a play which result from conditions of production and staging from those features which result from the culture of the time the play was written.	K	14-4	H

Language Arts

2 Literature
2.1 Genres, Types, Forms

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.16 Biography			
The student knows that biographies provide information on an individual's life and his period in history.	K	14-4	I
The student knows that a biography is the history of a man's life which describes and analyzes the individual's personality and milieu.	K	14-4	I
The student is able to write a biographical sketch of a classmate, author, famous person, historical character, etc. which includes such basic facts as: birthdate, place, education, significant events, and outlook on life.	P	14-4,10	U
The student knows that an autobiography is written by the subject himself and is distinguished from private diaries and journals.	K	14-2	U
The student is able to use biographies for gaining information on an individual's life and a period in history and can compare them with other literary works.	P	14-4	I

2 Literature
2.1 Genres, Types, Forms
2.17 Essays and Letters

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.171 Essays			
The student knows the informal essay is a brief prose work in which the author assumes an equal level of competence with the reader and employs a relaxed, humorous, and often whimisical tone.	K	14-2	U
The student is able to write an informal essay in which he presents his ideas on a subject in a relaxed, humorous, and often whimsical manner.	P	14-2	U
The student knows the formal essay is a brief prose work in which the author writes as an authority on the subject, presents arguments in an orderly and systematic fashion, and employs a dignified and impersonal tone.	K	14-4	U
The student is able to write a formal essay in which he presents his ideas and arguments on a subject with authority in a dignified and impersonal tone.	P	14-4	U
The student knows that informal essays may be classified according to the author's purpose: descriptive, humorous, critical, satirical, persuasive, instructive, reflective.	K	14-2	H

2 Literature
2.1 Genres, Types, Forms
2.17 Essays and Letters

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.172 Letters			
The student knows that the personal letter can achieve the status of literature, that the principle of rendering in detail rather than just summarizing can be exercised in letters as well as in stories and essays.	K	14-3	U

Language Arts

2 Literature
2.1 Genres, Types, Forms
2.18 Poetry

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.181 Definition			
The student is able to distinguish poetry from prose.	P	14-1	I

Language Arts

2 Literature
2.1 Genres, Types, Forms
2.18 Poetry

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.182 Concepts			
The student understands that a poem is unique, possessing a logic of its own; that it must be interpreted on its own terms rather than relying only upon rigid, unchanging rules of explication.	K	14-4	H
The student understands that the poet celebrates the everyday things of this world and does not always devote himself to elevated themes of nature or romantic love.	K	14-2	U
The student understands that many poems have at their center irony and paradox.	K	14-4	H
The student understands that pop music lyrics and themes represent a type of contemporary poetic expression.	K	14-2	U

Language Arts

2 Literature
2.1 Genres, Types, Forms
2.18 Poetry

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.183 Type--Conventions			
The student knows that a folk ballad tells a story through dialogue and action, and frequently uses the stanza form of a quatrain in alternate four and three stress lines rhyming abcb, refrain, and stock descriptive phrases.	K	14-3,4	I
The student knows that a folk ballad is a song by an unknown author, handed down orally, and subject to change because each singer is likely to alter the words and tune.	K	14-3,4	I
The student understands that the literary ballad is written in deliberate imitation of the form and spirit of a folk ballad and that because the poet does not treat subjects that are already well-known to the reader, the literary ballad is longer and more detailed than the folk ballad.	K	14-4	H
The student knows that Haiku is a major form of Japanese verse which has seventeen syllables, employs highly evocative allusions and comparisons, and creates a single image.	K	14-4	I
The student knows that a limmerick is a nonsense poem of five lines with a metrical foot consisting of two short syllables followed by a long one, or two unaccented syllables followed by an accented one.	K	14-4	U
The student is able to write in the following poetic forms: cinquain, couplet, limmerick ballad, haiku, free verse.	P	14-4	P

2 Literature
2.1 Genres, Types, Forms
2.18 Poetry

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.183 Type--Conventions (cont.)			
The student knows that cinquain is a form of Japanese verse which has a definite form involving four lines: 1st line states the topic in 1 word, 2nd line gives action to the topic in 2 words, 3rd line gives feeling to the topic in 3 words, and 4th line restates the topic in 1 other word that is different than the 1st line.	K	14-4	I
The student knows that blank verse is unrhymed, iambic pentameter.	K	14-4	H
The student knows that free verse is characterized by much rhythmic variation; new, irregular, or unusual stanzaic forms; and either absence of rhyme or a loose rhyme pattern.	K	14-4	H
The student knows that an epic is a long narrative poem about the deeds of a traditional heroic figure.	K	14-4	U
The student knows that a sonnet is a poem of fourteen lines in any of several fixed verse and rhyme schemes, typically in rhymed iambic pentameter, which characteristically expresses a single theme.	K	14-4	H
The student understands that a lyric is a poem which expresses the poet's emotions or sentiments rather than simply telling external events.	K	14-4	U
The student knows that the title, vocabulary, structure, literal meaning, and relationship of a poem are used to interpret the author's ideas.	K	14-4	U

2 Literature
2.1 Genres, Types, Forms
2.19 Sub-genre

Goal	**Knowledge or Process**	**Program Goal to Which this Goal Contributes**	**Appropriate Initial Instructional Level P/I/U/H**
2.191 Children's Literature The student knows that there is a wide variety of children's literature--fairy tales, fables, myths, epics, ballads, legends, fanciful tales, realistic stories, historical fiction, animal stories, informational books, etc.	K	14-3	I

2 Literature
2.1 Genres, Types, Forms
2.19 Sub-genre

Goal	**Knowledge or Process**	**Program Goal to Which this Goal Contributes**	**Appropriate Initial Instructional Level P/I/U/H**
2.192 Fantasy			
The student knows that a work of fantasy is developed through the exercise of free imagination resulting in the creation of supernatural or unnatural events or characters.	K	14-2	U
The student knows that science fiction is often used as a vehicle for social criticism and satire.	K	14-2	U
The student knows that a technique often used in science fiction is to extrapolate plausible future states from existing conditions.	K	14-2	U

Language Arts

2 Literature
2.1 Genres, Types, Forms
2.19 Sub-genre

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.193 Science Fiction The student knows that valid scientific principles are often utilized in science fiction writing;: e.g., gravity, solar energy, rocket propulsion, computer technology.	K	14-2	I

Language Arts

2 Literature
2.1 Genres, Types, Forms
2.19 Sub-genre

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.194 Mystery The student knows the devices commonly used by leading mystery writers: deductive reasoning, legalities, suspense, surprise endings, reader participation, etc.	K	14-2	U

Language Arts

2 Literature
2.2 Use and Choice of Language in Literature

Goal	**Knowledge or Process**	**Program Goal to Which this Goal Contributes**	**Appropriate Initial Instructional Level P/I/U/H**
2.21 Style			
The student knows that style is the characteristic use of language by a writer at the level of words and sentences.	K	14-4	U
The student knows the following tools of stylistic analysis: a) progressive refinement of a core statement, b) verb density, c) linking and transitional expressions, d) repetition of clausal and phrasal structure, e) figurative expressions, f) imagery, g) relation of sentence pattern to content, h) ratio of active and passive sentences, i) number of embedded sentences, j) variation of sentence length.	K	14-4	H
The student is able to write an evaluation of an author's style by using the following tools of stylistic analysis: a) progressive refinement of a core statement, b) verb density, c) linking of transitional expressions, d) repetition of clausal and phrasal structure, e) figurative expressions, f) imagery, g) relation of sentence pattern to content, h) ratio of active and passive sentences, i) number of embedded sentences.	P	14-4	H
The student knows that formal language tends to deal with complete sentences, longer and more complex sentences, academic or technical vocabulary, and a serious tone; whereas informal language deals more frequently with sentence fragments, shorter sentences, slang and colloquial expressions, and a conversational tone.	K	14-4	I
The student knows that texture is the density of verbs and modifiers and the complexity of sentence structure. (A sentence derived from many embedded sentences would have a dense texture.)	K	14-4	H

Language Arts

2 Literature
2.2 Use and Choice of Language in Literature

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.21 Style (cont.)			
The student knows that a descriptive phrase may describe an action, paint a visual picture, denote a sound or smell.	K	14-4	P
The student understands that a writer utilizes word connotation in order to give emotional depth and richness to the writing.	K	14-4	I
The student knows that style, like usage, depends upon time (literary era), writer's purpose (serious, humorous), and audience (sophisticated, mass).	K	14-4	U
The student knows that style cannot be separated from content, that style and content are part of a whole. Content determines style, and style, in turn, affects content. (Imagine Huck Finn speaking like a Harvard graduate.)	K	14-4	U
The student knows that different styles exist for different genre and literary types (e.g., between a nonsense poem and a heroic couplet) and for different kinds of factual material (e.g., a newspaper and a textbook).	K	14-4	U
The student knows that whenever a character in literature speaks, he may reveal the following: a) historical era, b) geographic origin, c) sex and age, d) education, e) socio-economic status, f) values.	K	14-4	I

Language Arts

2 Literature
2.2 Use and Choice of Language in Literature

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.22 Figurative Language			
The student knows that figurative language is nonliteral.	K	14-4	I
The student knows that figurative language, symbols, and images are interrelated with and part of the meaning.	K	14-4	H
The student knows that a writer "invents" figurative language because the existing language cannot convey his meaning or insight. The writer is, in effect, creating a new language using the resources of the old. ("Listen to the Worm.")	K	14-4	U
The student knows that writers attempt to create fresh and unique figures of speech that overcome the cliches of figurative language in common usage.	K	14-4	U
The student knows that figures of speech can give a new interpretation (or expression) of experience.	K	14-4	I
The student knows that the following are the major types of figurative language: metaphor, simile, personification, hyperbole, oxymoron, apostrophe.	K	14-4	U
The student knows that an epigram is a terse, pointed statement which ends with a surprising or witty turn of thought.	K	14-4	U
The student is able to compose and include epigrams in his writing to add witty and surprise effects.	P	14-4	H
The student knows that metaphor and simile--the two most common forms of figurative language--involve a comparison of two basically dissimilar things that share a single characteristic.	K	14-4	U

Language Arts

2 Literature
2.2 Use and Choice of Language in Literature

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.22 Figurative Language (cont.)			
The student knows that many words in the language are "dead metaphors": words that have lost their metaphoric significance through wide usage--"the legs of a chair."	K	14-4	U
The student knows that a pun is a play on words that are identical or similar in sound but have sharply diverse meanings; or it is the use of a single word or phrase with two incongruous meanings, both relevant.	K	14-4	U
The student knows that metonymy is a word that is substituted for one with which it is closely associated. (The crown substituting for the king.)	K	14-4	H
The student knows that synecdoche names an important part to signify the whole--"All hands on deck."	K	14-4	H
The student is able to use synecdoche (the part is used for the whole or the reverse) in his writing to achieve connotations which attach vividness and high emotional quality.	P	14-4	H
The student knows that a litotes is an understatement in which the affirmative is expressed by the negative of its contrary ("not bad at all").	K	14-4	H
The student knows that a hyperbole is an extreme exaggeration of fact--"Her eyes opened wide as saucers."	K	14-4	U
The student is able to use hyperboles, and extreme exaggeration of fact, to give added meaning to his writing.	P	14-4	H

Language Arts

2 Literature
2.2 Use and Choice of Language in Literature

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.22 Figurative Language (cont.)			
The student knows that personification is the giving of human qualities to a non-human thing.	K	14-4	I
The student is able to use personification (a figure of speech in which an inanimate object or an abstract concept is described as being endowed with human attributes, powers, or feelings), to provide unique ways of presenting a theme.	P	14-4	P

2 Literature
2.2 Use and Choice of Language in Literature
2.23 Tone

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.231 Characteristics of Tone			
The student knows that tone is the writer's attitude toward his subject and audience.	K	14-4	U
The student knows that tone signals the implicit meaning underlying the writer's explicit presentation.	K	14-4	U
The student knows that tone is as varied as the different attitudes possible for any human being--such as ironic, serious, objective, alienated, solemn, sportive, satirical, tragic, and sentimental.	K	14-4	I
The student is able to develop tone in a written composition--ironic, serious, tragic, objective, alienated, solemn, sportive, satirical, or sentimental, to enhance meaning.	P	14-4	H
The student knows that irony is a mode of speech in which the intended meaning is opposite to that which is literally expressed.	K	14-4	U
The student knows that irony varies in degree from lighthearted to vicious.	K	14-4	U

2 Literature
2.2 Use and Choice of Language in Literature

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.24 Setting			
The student knows that setting is time and place--time in history, season of the year, geographic place, particular circumstances of the environment (an old home), and the cultural milieu.	K	14-4	P
The student knows that the cultural milieu--a more demanding and sophisticated aspect of setting--includes the ethos, mores, customs, and life styles of the time and place.	K	14-4	I

2 Literature
2.2 Use and Choice of Language in Literature

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.25 Mood			
The student knows that mood is the generalized feeling that the setting, tone, and action evoke from the reader such as the feeling experienced by the reader of Poe's "Fall of the House of Usher."	K	14-4	U
The student is able to use setting, tone, and action to convey a mood (general emotional feeling).	P	14-4	I

2 Literature
2.2 Use and Choice of Language in Literature

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.26 Point of View			
The student knows that the narrator (implied author) may or may not be a character in the literary work. If not, the point of view is traditionally labelled third-person or third-person omniscient. The narrator may be a major or minor character (first-person point of view).	K	14-4	U
The student knows that by assuming and projecting a different frame of mind, a writer creates a storyteller (narrative voice, implied author) who, in effect, tells the story to the reader.	K	14-4	U
The student understands that the point of view chosen by an author has certain implications: a) If the narrator is a character, then the reader knows only what the character knows. b) Conversely, a first person narrator gives the reader an immediate access to the narrator's mind. c) The narrator creates the tone of a literary work.	K	14-4	U

Language Arts

2 Literature
2.2 Use and Choice of Language in Literature

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.27 Sound			
The student understands the relationship between "sound" (alliteration, rhythm, onomatopoeia) and "sense" (meaning) in poetry. Sound reinforces meaning and meaning reinforces sound. (Poe's "The Bells", Houseman's "To an Athlete Dying Young")	K	14-4	I
The student knows that the characteristics of sound (non-phonemic) can be identified as intonation, stress, pitch, pause, rhyme, rhythm, onomatopoeia, and alliteration.	K	14-4	I
The student knows that rhymed poetry has a regular pattern of sound repetition and that different patterns can be identified. (e.g., abab, aabb, etc.)	K	14-4	I
The student is able to use the following terms to classify a poem according to foot, the combination of stressed and unstressed syllables which constitutes the recurrent rhythmic unit of a line: Iambic--an unstressed followed by a stressed syllable. Trochaic--a stressed followed by an unstressed syllable. Dactylic--a stressed followed by two unstressed syllables. Spondaic--two successive stressed syllables.	P	14-4	H
The student is able to use the following terms to analyze a poem's meter: Monometer-one foot; Dimeter-two feet; Trimeter-three feet; Tetrameter-four feet; Pentameter-five feet; Hexameter-six feet; Heptameter-seven feet.	P	14-4	H
The student knows that onomatopoeia is an exception to the arbitrary relationship between sound and meaning, that an onomatopoeic sound imitates its referent--the "buzz" of bees, the "moo" of cows.	K	14-4	I

2 Literature
2.2 Use and Choice of Language in Literature

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.27 Sound (cont.) The student knows that alliteration is the repetition of initial consonant sounds with changes in intervening sounds.	K	14-4	I

Language Arts

2 Literature
2.2 Use and Choice of Language in Literature

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.28 Symbols and Image			
The student knows that a writer may use a pattern of images throughout a work, thus contributing to the overall meaning: the "clothes" images in Macbeth.	K	14-4	U
The student knows that poets and writers, past and present, use the many meanings associated with universal symbols. (e.g., the sea, the moon, the sun, and other natural objects and phenomena that are experienced by all men during all times.	K	14-4	U
The student understands that a literary work often contains a dominant symbol which contributes to the meaning, unity, and structure of the work.	K	14-4	U
The student knows that a "sign" is unambigious (one meaning) whereas a symbol may possess multiple meanings.	K	14-4	U

2 Literature
2.3 Content

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.31 The Influence of Literature on Society			
The student knows that a literary work may be significant for a number of reasons--social, historical, economic, religious, philosophic, political.	K	14-3	H
The student understands that a writer expresses ethical values through the ways in which his characters react to problems, the choices they make, their statements, and through exposition and the outcome of the story.	K	14-3	H
The student understands that a writer may present his ethical values by portraying a life style that is opposed to those values and demonstrating how destructive to personal life and society that negation can be.	K	14-3	H
The student knows that most literature in addition to telling a story makes a statement about the meaning or significance of some object or idea.	K	14-3	U
The student understands through reading of literature cultural attitudes and customs other than his own.	K	14-3	U
The student knows that he can gain access to the past either by reading works written during a particular historical period or by reading works written about a particular historical period.	K	14-3	U
The student understands that people of various cultures often express identical emotions in their literature.	K	14-3	H

2 Literature
2.3 Contents

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.32 The Influence of Society on Literature			
The student knows that philosophies such as existentialism, determinism, and humanism have exerted profound direct and indirect influence on writers, (e.g., Sartre, Graham Greene, James Joyce).	K	14-3	H
The student understands that the experiences and background of the author contribute to the theme of his works.	K	14-3	U
The student understands that archetypal patterns are reflections of universal conditions, such as death-rebirth, heaven-hell, the quest, unrequited love.	K	14-3	H
The student is able to recognize archetypal patterns in literature.	P	14-3	H
The student knows that allusions to mythical characters, situations, or events are frequently encountered in Western literature.	K	14-3	H
The student knows that Biblical allusions are frequently encountered in Western literature.	K	14-3	H
The student understands that Judaeo-Christian themes have had a significant influence in Western Literature, (e.g., guilt, original sin, atonement, retribution, justice, mercy, salvation, absolute morality, fulfillment of human potential, love of fellow man, etc.).	K	14-3	H
The student knows that writers frequently allude to widely known characters, situations, or events found in the works of influential writers such as Dante, Shakespeare, and Chaucer.	K	14-3	H

Language Arts

2 Literature
2.3 Contents

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.32 The Influence of Society on Literature			
The student knows that achieving the American dream is a common literary theme, (i.e., the belief that any man can raise himself by his bootstraps and become what he wishes to be and attain what he wishes to have).	K	14-3	H
The student is able to recognize the types and themes of Oriental literature. (denial of ego, oneness of living things, unimportance of material comfort, etc.)	P	14-3	H

Language Arts

2 Literature
2.3 Content

Goal	**Knowledge or Process**	**Program Goal to Which this Goal Contributes**	**Appropriate Initial Instructional Level P/I/U/H**
2.33 The Individual and Society in Literature			
The student understands that literature may reflect the idea that a person's destiny is influenced by the interaction of heredity, maturation, and environment.	K	14-3	H
The student knows that literature reflects a wide variety of life styles and that the relative merit of any way of life is most successfully determined by the degree to which it provides individual fulfillment and yet recognizes the rights and dignity of other human beings.	K	14-3	U
The student knows that literature reflects the idea that human experience is various and paradoxical, embracing a multitude of often conflicting opposites, e.g., the good and the bad, the pleasant and the repugnant, the beautiful and the ugly, the moral and the immoral.	K	14-3	H
The student knows that a basic human impulse reflected in literature is the integration and the resolution of the apparently contradictory elements of the world.	K	14-3	U
The student understands that the tragic and the comic often coexist in human experience and that their coexistence is often found in literary works. (Catch 22, Franny & Zooey, etc.)	K	14-3	H
The student understands that literature may reflect man's concern and acceptance of responsibility to his fellow man.	K	14-3	H
The student knows that literature reflects conflicts based upon differences in age, attitude, and value.	K	14-3	U

2 Literature
2.3 Content

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.33 The Individual and Society in Literature (cont.)			
The student knows that literature reflects that one can come to a deeper understanding of self and others through the experience and effort to resolve conflict.	K	14-3	U
The student understands that literature can reflect disillusionment when a character recognizes that his view of himself, society, or the world is false.	K	14-3	U
The student knows that literature reflects an individual's awareness of the discrepancy between appearance and reality that can influence him to perceive his situation in a number of ways, e.g., humorous, absurd, futile, tragic, and as demanding or denying action.	K	14-3	U
The student understands that literature reflects that a profound love relationship substantially changes one's emotional make-up and irrevocably alters the course of one's life.	K	14-3	I
The student knows that the human potential for types and degrees of love as portrayed in literature has a vast range, and that this impulse lends depth and richness to life. (e.g., love of brother, love of parent, love of child, love of friend, love of fellow man, love between man and woman.)	K	14-3	U
The student knows that literature reflects that a discrepency exists between love as it is idealized and love as it struggles for survival and that this discrepancy may be a source of anxiety and pain.	K	14-3	H

Language Arts

2 Literature
2.3 Content

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.33 The Individual and Society in Literature (cont.)			
The student knows that literature reflects that unreturned love may cause grief and despair but that adjustment to such an experience may strengthen and temper an individual.	K	14-3	H
The student understands that literature reflects that loyalty is an individual's commitment that may result in compromise, rejection, persecution, or martyrdom.	K	14-3	U
The student knows that literature reflects that one's sense of loyalty to a cause can be verified through examination of the reasons for and extent of his commitment to the cause.	K	14-3	I
The student knows that literature reflects that individual loyalty may create a conflict between personal integrity and group commitment which may force one to question his own values as well as the group's and may require a choice that will lead to his rejection or destruction.	K	14-3	U
The student understands that literature reflects that ambition may improve man's condition and contribute to social order but may also be boundless and unreasoning, becoming not only self-destructive but frequently bringing disaster to those indirectly involved in its development.	K	14-3	H
The student understands that literature reflects that failure is capable of either destroying the human spirit or ennobling it by leading to greater understanding of self and others.	K	14-3	U
The student understands that literature reflects that a fundamental human need is for the individual to recognize and come to terms with the inevitability of his death.		14-3	U

Language Arts

2 Literature
2.3 Content

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.33 The Individual and Society in Literature (cont.)			
The student understands that literature reflects that philosophies of life are sometimes characterized by a preoccupation of death.	K	14-3	H
The student knows that literature reflects that war may force man to a new and more complete knowledge of himself.	K	14-3	U
The student understands that practices that are not acceptable in one culture may be acceptable in another culture.	K	14-3	I
The student understands that literature reflects that individual freedom varies in degrees and types and there are social and legal constraints upon that freedom.	K	14-3	I
The student understands that literature reflects that social or group pressure to conform affects man's behavior and may create conflicts between what seems right to the individual and the group.	K	14-3	I
The student understands that literature reflects that conflict can exist between mores and laws.	K	14-3	U
The student understands through literature the possible consequences of conformity and nonconformity. (e.g., loss of self-maintenance, order, persecution, imprisonment, etc.)	K	14-3	U
The student understands that literature's portrayal of characters who feel separated from an individual, a group, or a society can help him gain insight into his own sense of loneliness and alienation.	K	14-3	U

Language Arts

2 Literature
2.3 Content

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.33 The Individual and Society in Literature (cont.)			
The student understands through literature that a man or group faced with intense and prolonged discrimination and alienation may react by assuming a self-effacing undemanding role but may also strike back with a degree of hostility that can be frightening and destructive.	K	14-3	U
The student understands through literature that alienation can result from the disavowal of shared values and failure of communication.	K	14-3	H
The student knows that in literature alienation is expressed in various ways: breaking accepted laws and mores, rebellion, ennui, dropping out, and flight.	K	14-3	U
The student understands that literature reflects that different groups face many common problems and challenges in American society.	K	14-3	U
The student understands through literature the idea that black culture has been cut off from the American mainstream by a number of repressive circumstances and attitudes such as the long perpetuation of southern slave/master roles, the weakening of family structures, absence of pride in national origins, economic institutions dependent upon black labor, and stereotyped attitudes about the black race.	K	14-3	H
The student knows that American literature has perpetuated stereotypes of the black man, such as the passive contented slave, the minstrel, one who prefers sub-standard living conditions, one who is stupid, emotional, humorous, simple, loyal, sexually uninhibited, athletic, musical, and shiftless.	K	14-3	U

Language Arts

2 Literature
2.3 Content

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.33 The Individual and Society in Literature (cont.)			
The student understands through literature that prejudice is based upon a preconceived and unreasonable judgment or opinion, usually an unfavorable one marked by fear, suspicion, intolerance, or hatred.	K	14-3	U
The student knows that literature reflects that the negative aspects of the black experience in America has generally been considered more damaging to the masculine identity than to the feminine.	K	14-3	H
The student understands that literature may be an effective vehicle for social protest.	K	14-3	H
The student knows that utopian literature treats man's search for the perfect society and usually condemns existing conditions by social criticism and satire.	K	14-3,4	H
The student understands that Utopian and anti-Utopian literary works include themes, such as individual freedom, the family unit, education, government, work, and leisure times.	K	14-3	H
The student understands that literature reflects a multiplicity of philosophies about war and a variety of causes for war, including economics, politics, science, technology, and religion.	K	14-3	U
The student understands that literature reflects that the makings of a society include political, economic, educational, leisure or avocational, social, and spiritual or religious elements.	K	14-3	H

2 Literature
2.3 Content

Goal	**Knowledge or Process**	**Program Goal to Which this Goal Contributes**	**Appropriate Initial Instructional Level P/I/U/H**
2.33 The Individual and Society in Literature (cont.)			
The student knows that literature reflects that man has long questioned his relationship to the universe; sometimes seeing himself as a significant and integral part of it, sometimes as tyrannical master of it, and sometimes feeling that it is indifferent or even hostile to him.	K	14-3	U

Language Arts

3 Reading
3.1 Readiness, Pre-reading Skills
3.11 Physical Readiness

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.111 Motor Skills			
The student is able to use gross and fine motor skills appropriately in a variety of teacher tasks specified.	P	99-8	P
The student is able to demonstrate coordination in gross motor movement (i.e., catching, hitting, kicking, throwing, etc.).	P	99-8	P
The student performs coordinated movements involving large muscles (i.e., tapping, clapping, hopping, running, and walking a balance beam, etc.).	P	99-8	P
The student knows that a book has a conventional organization which requires it to be held right side up and used from front cover to back.	K	99-8	P
The student is able to use his finger, chalk, a crayon, pencil, paintbrush or pointer to complete a configuration or pattern.	P	99-8	P
The student is able to manipulate primary writing tools and art equipment (pencil, crayons, paintbrush, scissors, paste, etc.).	P	99-8	P
The student is able to demonstrate eye-hand coordinations as directed.	P	99-8	P

Language Arts

3 Reading
3.1 Readiness, Pre-reading Skills
3.11 Physical Readiness

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.112 Visual Perception (cont.)			
The student visually is able to progress from left to right and from top to bottom, when so instructed.	P	99-8	P
The student is able to distinguish left from right and top from bottom.	P	99-8	P
The student knows the capital and lower case letters.	K	99-8	P
The student is able to distinguish between the capital and the lower case letters.	P	99-8	P
The student is able to associate a number word with its appropriate numeral.	P	99-8	P

Language Arts

3 Reading
3.1 Readiness, Pre-reading Skills
3.11 Physical Readiness

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.113 Auditory Perception			
The student is able to select and compare rhyming sounds in words, phrases and verses.	P	99-8	P
The student is able to distinguish when the variation in a sound is due to the variation of its pitch, its volume, or its distance, respectively.	K	99-8	P
The student is able to determine if a sound occurs at the beginning, middle, or end of a word.	P	99-8	P
The student is able to distinguish among initial consonant sounds.	P	99-1,8	P
The student is able to match sounds to their sources.	P	99-8	P
The student is able to follow simple verbal directions telling him to execute a prescribed sequence of actions.	P	99-8	P

Language Arts

3 Reading
3.1 Readiness, Pre-reading Skills
3.11 Physical Readiness

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.114 Visual Memory			
The student is able to complete, repeat, or reproduce from memory a pattern or configuration.	P	99-8	P
The student is able to demonstrate visual memory by reproducing an array of objects.	P	99-8	P

Language Arts

3 Reading
3.1 Readiness, Pre-reading Skills
3.12 Mental Readiness

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.121 Identify Concepts			
The student knows the vocabulary necessary for expressing spatial relationships--(near, far, high, low).	K	99-9	P
The student understands the following positional words: up, down, over, under, in front, behind, left, right, before, after, next to, between, first, last, top, bottom, inside, outside, on, in, across.	K	99-9	P
The student knows the vocabulary necessary to describe a concrete or representational object: size, shape, color, and texture.	K	99-9	P
The student is able to classify concrete or representational objects as to their color, shape, size, and/or texture.	P	99-9	P
The student knows the names of the primary, secondary and earth colors.	K	99-9	P
The student is able to apply the names of the primary, secondary and earth colors appropriately to objects.	P	99-9	P

3 Reading
3.1 Readiness, Pre-reading Skills
3.12 Mental Readiness

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.122 Categorize and Classify			
The student knows that a concrete or representational object, an emotion, thought, or action can be classified in more than one kind of category.	K	99-9	P
The student is able to classify concrete and representational objects and figures according to their differences and similarities.	P	99-9	P
The student is able to classify positional relationships between concrete objects (up, down, over, under, beside, etc.).	P	99-9	P
The student is able to apply the name of the basic geometric shapes (circles, squares, triangle, rectangle) to objects appropriately.	P	99-9	P

Language Arts

3 Reading
3.1 Readiness, Pre-reading Skills
3.12 Mental Readiness

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.123 Sequence			
The student knows that sequential development involves an ordering of similar elements.	K	99-9	P
The student is able to use sequential development in any of the following areas: written, oral, representational (use of objects for illustration).	P	99-9,3c	P
The student is able to contribute to a group story in a logical, sequential manner.	P	14-9	P

Language Arts

3 Reading
3.2 Decoding
3.21 Symbols into Sounds and Meaning

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.210 Phonetics - Symbols and Sounds			
The student is able to use phonetic principles to pronounce unfamiliar words.	P	99-1	P
The student is able to use consonant digraphs to pronounce unfamiliar words.	P	99-1	P
The student is able to use long and short vowel sounds in sounding unfamiliar words.	P	99-1	P
The student is able to use consonant blends to pronounce unfamiliar words.	P	99-1	P
The student is able to use phonetic exceptions to pronounce unfamiliar words.	P	99-1	I
The student is able to recognize final consonant sounds in unfamiliar words.	P	99-1	P
The student is able to use final consonants in sounding unfamiliar words.	P	99-1	P
The student is able to sound words which have silent consonants.	P	99-1	I

Language Arts

3 Reading
3.2 Decoding
3.21 Symbols into Sounds and Meaning

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.211 Writing Systems			
The student is able to correlate cursive with manuscript writing.	P	99-1	P

Language Arts

3 Reading
3.2 Decoding
3.21 Symbols into Sounds and Meaning

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.212 Alphabetical Ordering Systems			
The student knows the convention of alphabetical order in lists.	K	99-1,2	P
The student is able to divide words into syllables.	P	99-1,14-7	P

Language Arts

3 Reading
3.2 Decoding
3.21 Symbols into Sounds and Meaning

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.213 Word Structure System The student is able to use skills of structural analysis to attack unknown words.	P	99-1	P

Language Arts

3 Reading
3.3 Vocabulary Building and Meaning
3.31 Definition

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.311 Contextual and Picture Clues to Meaning			
The student is able to open a book to an indicated section.	P	99-3c	P
The student knows that reading is done from left to right and top to bottom	K	99-3c	P
The student is able to proceed down a page from left to right and from top to bottom without moving his head.	P	99-3c	P

Language Arts

3 Reading
3.3 Vocabulary Building and Meaning
3.31 Definition

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.312 Dictionary Use The student is able to use a dictionary to find the definition of a word and to select the specific meaning appropriate for his need.	P	99-3c	I

Language Arts

3 Reading
3.3 Vocabulary Building and Meaning
3.31 Definition

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.313 Roots, Affixes, Compounds			
The student knows that a compound word is a combination of two or more words.	K	14-7	P
The student is able to decode compound words in his reading.	P	99-2a,b,c	P
The student knows that root words control the meaning of the new words they form.	K	14-7	U
The student is able to use root words to help determine word meaning.	P	99-2d	I
The student knows that understanding the meaning of foreign roots is an aid in defining English words based on those roots.	K	14-7	U
The student knows that affixes change the meaning and/or function of a word.	K	99-2	P
The student is able to analyze affixes to help determine word meanings and functions.	P	99-2d	I
The student is able to recognize prefixes with Latin and Greek derivation. (e.g., ex, sub, pro, etc.)	P	99-2	I
The student knows the meaning of: un, re, pre, dis, mis, over, in, im, and other prefixes as used in words.	K	99-2	I
The student is able to use the meanings of prefixes with Latin and Greek derivation to understand new words.	P	99-2	I
The student knows that a word's function may be changed by adding suffixes: miss-ing, -less, and -by.	K	99-2	I

3 Reading
3.3 Vocabulary Building and Meaning
3.31 Definition

Goal	**Knowledge or Process**	**Program Goal to Which this Goal Contributes**	**Appropriate Initial Instructional Level P/I/U/H**
3.314 Analogies			
The student is able to make analogies between new vocabulary words and familiar words and thus define the new word.	P	99-2	I

Language Arts

3 Reading
3.3 Vocabulary Building and Meaning
3.32 Expanding Vocabulary

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.321 Roots and Affixes			
The student is able to use root words to increase his vocabulary.	P	99-2a,b,c	P
The student is able to use affixes to increase his vocabulary.	P	99-2a,b	P
The student is able to change the meaning of root words by adding affixes.	P	14-7	I

Language Arts

3 Reading
3.3 Vocabulary Building and Meaning
3.32 Expanding Vocabulary

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.322 Compounds The student is able to develop compound words from two or more words.	P	14-7	P

Language Arts

3 Reading
3.3 Vocabulary Building and Meaning
3.32 Expanding Vocabulary

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.323 Synonyms, Antonyms, Homonyms and Acronyms			
The student knows that homonyms are words which have the same pronunciation but different meanings.	K	14-7,10,12	I
The student knows that antonyms are words whose meanings are opposite.	K	14-7,10,12	I
The student knows that a synonym is a word that has the same or nearly the same meaning as another word.	K	14-7,10,12	P
The student is able to use synonyms, hononyms, and antonyms to increase his vocabulary and make his meaning more precise.	P	14-7,10,12	P

Language Arts

3 Reading
3.3 Vocabulary Building and Meaning
3.32 Expanding Vocabulary

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.324 Idioms The student understands that idioms increase his vocabulary by expanding the range and subtlety of his symbolic repertoire.	K	99-2	I

Language Arts

3 Reading
3.3 Vocabulary Building and Meaning
3.32 Expanding Vocabulary

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.325 Malapropisms			
The student knows that a malapropism is a word that sounds somewhat like the one intended.	K	99-2a,b	I
The student is able to recognize a malapropism and supply the correct word.	P	99-2a,b	I

Language Arts

3 Reading
3.3 Vocabulary Building and Meaning
3.32 Expanding Vocabulary

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.326 Abstract Words			
The student is able to use abstract nouns to increase the power and range of his vocabulary.	P	99-2	U
The student knows that using concrete, concise, and vivid words increases the power and range of his vocabulary.	K	99-2	I

Language Arts

3 Reading
3.3 Vocabulary Building and Meaning

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.33 Context			
The student knows that often the meaning of words can be derived from their context.	K	99-2d	I
The student is able to use contextual clues to determine the meaning of words.	P	99-2d	I

Language Arts

3 Reading
3.4 Comprehension

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.41 Increasing Comprehension			
The student is able to extend a sequence of ideas, facts, or details presented in written material by providing additional related examples of his own and thus more deeply impress his comprehension and retention.	P	99-3c	I
The student is able to comprehend the author's purpose, his organizational plan, and the presentation of subordinate ideas to support the main idea.	P	14-1	P
The student knows that it is useful for comprehension to re-read: a) to get meanings not perceived on first reading, b) to experience episodes in the book or article again because something appeals to him, c) for more specific detail or to fill in detail missed in first reading.	K	99-6d	P
The student knows that stopping periodically to review and accurately paraphrase the material he is reading is an aid to recall and comprehension.	K	99-3c	I
The student knows that understanding nonliteral language (figurative and imaginative speech--similes, metaphors, euphemisms, colloquialisms, poetic expressions) is a help to increase his comprehension.	K	41-1	I
The student is able to test written material for its reality quotient by comparing it with his own knowledge and experience, other material with which he is familiar, or logical principles and thus increase his comprehension.	P	99-3c	U

Language Arts

3 Reading
3.4 Comprehension

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.42 Grasping the Main Idea			
The student understands the literal meaning of a line-by-line reading of poetry.	K	99-3	I
The student is able to use the title of a work as a clue for the main idea (theme) or dominant mood.	P	99-4c-1	I
The student is able to locate a topic sentence as an aid in determining the main idea of a paragraph.	P	99-4c-1	P
The student is able to skim a selection preliminary to an in-depth reading for main ideas, general format and organization, and style.	P	14-10	I

Language Arts

3 Reading
3.4 Comprehension

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.43 Supporting Detail			
The student is able to distinguish a main idea from supporting details.	P	99-3c	I
The student is able to order details that describe setting, events, characters, emotions, mood, and theme.	P	99-3c	I
The student is able to specify details about characters, setting, and events.	P	99-3c	P
The student is able to establish relationships between ideas and details in literary works.	P	99-3c	U
The student is able to recognize detailed information which deals with time, place, and cultural milieu in selected readings.	P	99-3c	U

Language Arts

3 Reading
3.4 Comprehension

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.44 Sequencing The student is able to order events, ideas, or time sequentially, in selected readings.	P	99-3c	P

Language Arts

3 Reading
3.4 Comprehension

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.45 Classifying			
The student is able to classify ideas according to commonalities of subject, time, place, mood, character, classes and subclasses, and categories.	P	99-3c	P
The student understands that a writer may use a pattern of images throughout a work, thus contributing to the overall meaning: the "clothes" images in *Macbeth*.	K	14-4	U
The student is able to distinguish a work of fact from a work of fiction.	P	99-5a	P

Language Arts

3 Reading
3.4 Comprehension

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.46 Following Directions			
The student is able to recognize the key words needed to follow written directions.	P	99-3a	I

Language Arts

3 Reading
3.4 Comprehension

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.47 Summarizing, Synthesizing, Outlining			
The student is able to construct an outline that accurately represents the content of written material.	P	99-3c	I
The student is able to take notes that accurately represent the content of a piece of written material.	P	99-3c	I

Language Arts

3 Reading
3.5 Interpretation

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.51 Meaning			
The student is able to identify and interpret levels of meaning in a literary work, such as literal, symbolic or allegorical.	P	14-4	U
The student is able to grasp the meaning suggested by phrases containing sensory images.	P	14-4	P
The student knows that a descriptive phrase may describe an action, paint a visual picture, denote a sound or smell.	K	14-4	P
The student is able to recognize the meaning of allusions in literature.	P	14-4	U
The student is able to interpret a poem's meaning through its title, vocabulary, structure, literal meanings, and implications.	P	14-4	U
The student understands the literal meaning of a line-by-line reading of poetry.	K	99-3	I
The student is able to recognize any change in a meaning of a term in a reading selection.	P	14-4	U
The student understands that an author conveys meaning by the form (e.g., novel, drama, epic, sonnet, etc.) he chooses as well as by the words he chooses and thus a work may have an explicit (formal) meaning as well as an implicit (inner) meaning that must be gained through the reader's interpretation.	K	14-3,4	U

Language Arts

3 Reading
3.5 Interpretation

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.52 Prediction			
The student knows the meanings of the terminology needed to analyze and discuss plot development--exposition, initial incident, rising action, conflict, climax, anticlimax, falling action, catastrophe (denouement), foreshadowing, suspense, archetypal experience, etc.	K	14-4	H
The student is able to predict future action on the basis of previous action and characterization in the plot.	P	14-4	P

Language Arts

3 Reading
3.5 Interpretation

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.53 Literary Value			
The student is able to compare and contrast the literary works he reads and to rank them for their intrinsic worth.	P	14-4	I
The student is able to make hypotheses about the validity and worth of a reading selection as he reads but will suspend final judgment until all evidence is gathered and evaluated.	P	14-4	U
The student is able to evaluate the worth and effectiveness of a literary work on the basis of any of the following elements: genre, literary conventions and devices, plausibility, potential for meaningful interpretation, moral stance, relationship to a literary tradition, writer's intentions.	P	14-4	H

Language Arts

3 Reading
3.5 Interpretation

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.54 Techniques of Analysis			
The student is able to analyze a literary work in terms of structure (understanding the relationship of the parts to the whole and the whole to the parts), interpretation (discovering connotations, symbols, allegory, etc.) and critical significance (judging comparative worth).	P	14-4	H
The student is able to use the following techniques to make inferences about his reading material: 1) relating past knowledge (including his experiences), 2) making accurate summaries, 3) developing imaginative and logical alternatives.	P	14-4	P
The student understands that for an in-depth understanding of literature, he must consider both the primary source (the work itself) and secondary sources (information about the work and the author).	K	14-1	U

Language Arts

3 Reading
3.5 Interpretation
3.54 Techniques of Analysis

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.541 Clues			
The student is able to provide supporting textual details for his interpretation of a story.	P	14-12	P
The student is able to determine whether the supporting detail of a paragraph reinforces the thesis of the paragraph.	P	14-4	I
The student is able to distinguish historical statements that are factual from those that are interpretive.	P	14-4	I
The student is able to recognize the traditional methods of propaganda--testimonial, bandwagon, plain folks, card stacking, and transfer.	P	14-1	I
The student is able to use printing conventions such as quotation marks, capitalization, bold face, spacing and italics in interpreting literary works.	P	14-12	P
The student is able to interpret literary works by recognizing their use of conventional structure and universal themes.	P	14-2	P

3 Reading
3.5 Interpretation
3.54 Techniques of Analysis

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.542 Character			
The student is able to analyze attitudes held by characters which either cause or reinforce unjust social conditions.	P	14-3	I
The student is able to analyze the moral, social, and intellectual development of a character and his contributions to the thematic structure of a literary work.	P	14-4	I
The student is able to recognize a literary work's social conditions and the personal factors which an author uses to control and motivate the actions and decisions of the characters.	P	14-4	I
The student is able to analyze a character through what he says and does, what other characters say about him and how they interact with him and what the narrator tells the reader about him.	P	14-4	I
The student is able to determine the factors in a given novel, short story or poem which cause a character's alienation using the following categories: 1) the character's personality, 2) how others treat him, 3) the situation.	P	14-4	I
The student knows that incongruities of character, action, and situation are possible sources of humor.	K	14-4	I
The student is able to identify the protagonist, antagonist, and character foils and classify them as round or flat characters.	P	14-4	I
The student understands that the purpose of a character foil is to set off or enhance the protagonist by contrast.	K	14-2	H

Language Arts

3 Reading
3.5 Interpretation
3.54 Techniques of Analysis

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.542 Character (cont.)			
The student knows that the protagonist (hero) is the chief character in a work and that his opponent is called the antagonist.	K	14-4	H

Language Arts

3 Reading
3.5 Interpretation
3.54 Techniques of Analysis

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.543 Effects			
The student is able to recognize the effects of an editorial (to explain, to persuade, to criticize, to praise, to entertain).	P	14-4	U
The student is able to relate onomatopoeia to more effective sound quality and reinforce meaning.	P	14-4	I
The student is able to relate alliteration to more effective sound quality and reinforce meaning.	P	14-4	I
The student is able to identify images in a literary work and to explain the word pictures and other effects they create.	P	14-4	I
The student understands the relationship between "sound" (alliteration, rhythm, onomatopoeia) and "sense" (meaning) in poetry. Sound reinforces meaning and meaning reinforces sound. (Poe's "The Bells", Houseman's "To an Athlete Dying Young")	K	14-4	I
The student knows that personification is the giving of human qualities to a nonhuman thing.	K	14-4	I
The student is able to determine how a personification gives meaning and dramatic effects to the thing personified.	P	14-4	I
The student knows that a hyperbole is an extreme exaggeration of fact--"Her eyes opened wide as saucers."	K	14-4	U
The student is able to use hyperboles, and extreme exaggeration of fact, to give added meaning to his writing.	P	14-4	H

Language Arts

3 Reading
3.5 Interpretation
3.54 Techniques of Analysis

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.543 Effects (cont.)			
The student understands that a writer utilizes word connotation in order to give emotional depth and richness to the writing.	K	14-4	I
The student is able to identify the items that are compared in a metaphor or simile, interpret the meaning resulting from this comparison, and discover the relationship of the meaning to a larger context.	P	14-4	U
The student is able to relate an epigram to a witty or surprising effect.	P	14-4	U
The student is able to relate a pun to the effect intended by the author.	K	14-4	I
The student is able to relate a hyperbole to its serious or comic effect.	K	14-4	I
The student is able to interpret the effects of superstition upon characters, themes, and conflicts in literature.	P	14-4,3	U
The student is able to identify statements implying causality by recognizing the word indicators such as because, since, either-or, and therefore.	P	14-4	I
The student is able to analyze the cause-effect relationships among the actions of a literary work.	P	14-4	H
The student is able to reconstruct the rising actions, climax and resolution of the main plot and to analyze the relationship of sub-plots to the main actions.	P	14-4	P
The student is able to recognize the emotional tone in a paragraph.	P	14-4	P

3 Reading
3.5 Interpretation
3.54 Techniques of Analysis

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.543 Effects (cont.)			
The student knows the meanings of the terminology needed to analyze and discuss plot development--exposition, initial incident, rising action, conflict, climax, anticlimax, falling action, catastrophe (denouement), foreshadowing, suspense, archetypal experience, etc.	K	14-4	H
The student is able to interpret the writer's handling of time in a literary work.	P	14-4	H
The student is able to relate the author's use of suspense and foreshadowing in creating tension that contributes to reader interest.	P	14-4	U
The student is able to analyze the central conflicts in a literary work in order to understand how they affect the action and the character development.	P	14-4	I
The student understands that conflicts between individuals, ideas, and groups motivate actions that then contribute to the plot of a literary work.	K	14-4	I
The student is able to recognize the tone and mood of a poem, story, or other literary work.	P	14-1	I
The student is able to analyze the manner in which a theme of a literary work is developed by characterization, action, setting, and point-of-view.	P	14-4	I
The student knows that irony varies in degree from lighthearted to vicious.	K	14-4	U
The student is able to recognize ironic statements on a spectum ranging from playful irony to vicious sarcasm.	P	14-4	H

Language Arts

3 Reading
3.5 Interpretation
3.54 Techniques of Analysis

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.543 Effects (cont.)			
The student is able to recognize the words or phrases in a selection that create a dominant emotional impression.	P	14-4	I
The student is able to relate connotative words and phrases and their effects in advertisements, political speeches, and editorials.	P	14-3	I
The student knows that setting is time and place--time in history, season of the year, geographic place, particular circumstances of the environment (an old home), and the cultural milieu.	K	14-4	P

Language Arts

3 Reading
3.5 Interpretation
3.54 Techniques of Analysis

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.544 Setting			
The student is able to locate the significant features of the setting of a literary work and to relate them to effects.	P	14-4	P
The student is able to analyze how the setting affects the characters' values, motivations, decisions, aspirations, and attitudes toward life.	P	14-4	U

Language Arts

3 Reading
3.5 Interpretation

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.55 Author and Point of View			
The student understands that a writer's bias may affect the content of written material.	K	14-4	U
The student is able to support textually what he believes to be an author's attitude toward characters.	P	14-4	I
The student understands that the point of view chosen by an author has certain implications: a) If the narrator is a character, then the reader knows only what the character knows. b) Conversely, a first person narrator gives the reader an immediate access to the narrator's mind. c) The narrator creates the tone of a literary work.	K	14-4	U
The student is able to recognize the narrative role by the writer (point of view) and how it affects the tone and the reader's interpretation of characters and action.	P	14-4	U
The student knows that tone is the writer's attitude toward his subject and audience.	K	14-4	U
The student is able to analyze the relationship between a writer's style and his content by identifying the following syntactical elements of a passage:1) verb frequency, 2) linking and transitional expressions, 3) repetition of phrasal and clausal structure, 4) variation and frequency of sentence patterns.	P	14-4	H
The student is able to recognize the author's intended audience by analyzing the tone, style, and theme of the literary work.	P	14-4	H

3 Reading
3.5 Interpretation

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.55 Author and Point of View (cont.)			
The student is able to determine the writer's purpose as indicated by the genre, tone, language devices, and content of a literary work.	P	14-4	U
The student is able to determine the effect which the author's style tends to have on the reader.	P	14-4	U
The student is able to assess the validity of material on the basis of: 1) author's background, 2) when he published the materials, and 3) reasonableness of conflicting statements of other authors.	P	14-3	I
The student is able to take into account the relationship of an author's life and times to his writing as an aid to interpretation.	P	14-3	U
The student is able to recognize a writer's: a) qualifications, b) sources of information, and c) use of signaling phrases ("I believe..." "In my opinion") in order to distinguish fact from opinion.	P	14-4	I

Language Arts

3 Reading
3.5 Interpretation

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.56 Values and Attitudes			
The student is able to interpret the techniques used by advertisers to create favorable attitudes toward their product and persuade the customers to buy.	P	14-1	I
The student knows that his own values may influence his interpretation of material and understands that they could be in conflict with ideas expressed in his reading.	K	14-4	I
The student is able to differentiate attitudes that are implied from information that is stated in T. V., billboard, and magazine advertising.	P	14-4	I
The student is able to infer meanings and attitudes that are deliberately left unstated by the author.	P	14-4	I

Language Arts

3 Reading
3.5 Interpretation

Goal	**Knowledge or Process**	**Program Goal to Which this Goal Contributes**	**Appropriate Initial Instructional Level P/I/U/H**
3.57 Emotions			
The student is able to distinguish between emotional and unemotional language.	P	14-4	I
The student is able to distinguish between poems expressing sentiment and those expressing sentimentality.	P	14-4	U

Language Arts

3 Reading
3.5 Interpreation

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.58 Logic			
The student is able to distinguish inference (a statement about the unkown made on the basis of the known) from verified statements (statements whose accuracy has been tested).	P	14-4	P
The student is able to classify a given statement as fact, inference, or value judgment.	P	14-4	I
The student is able to evaluate a deductive argument by distinguishing between valid and invalid conclusions.	P	14-4	U
The student is able to recognize paragraphs that are organized inductively (move from the particular to the general).	P	14-4	U
The student is able to recognize semantic fallacies, such as errors in sampling or generalization from insufficient evidence, false analogy, and confusion between difference in degree and difference in kind.	P	14-1	I
The student is able to recognize evidence to support judgments he makes about the reading.	P	14-1	P
The student is able to evaluate internal consistency in a piece of writing by answering the following: 1) Are the author's ideas consistent? 2) Is the style and technique suitable to the content of the work? 3) Is the style or manner of presentation consistent? 4) Does he maintain a focus upon a central idea?	P	14-4	I

Language Arts

3 Reading
3.6 Purpose for Reading

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.61 Reading for Pleasure			
The student understands that literature encompasses a wide variety of subject and interest areas in which he may find information, satisfaction, relaxation, stimulation, escape, and challenge.	K	14-1	I
The student knows that reading literature during his leisure time can be a source of pleasure as well as information.	K	14-1	I

Language Arts

3 Reading
3.6 Purpose for Reading

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.62 Reading for Information			
The student understands the value of utilitarian reading for achieving his goals.	K	99-14	I
The student knows that it is possible to gain occupational information, knowledge about practical skills (mechanics, athletics, etc.), and theoretical knowledge in science, history, economics, etc. by reading.	K	14-1	I
The student knows that it is possible to satisfy his curiosity by reading for information.	K	99-0	I
The student understands that he may select literature which instructs him in practical skills such as gardening, mechanics, athletics, needlework, cooking, and other interest related activities.	K	14-1	I
The student knows that different periodicals have distinctly different purposes from one another.	K	14-1	U
The student is able to select those periodicals appropriate to his needs and purposes.	P	14-1	U
The student understands that he may select literature to gain occupational information.	K	14-1	I
The student is able to select books at an appropriate level to adequately satisfy and stimulate personal information or recreational needs.	P	99-3a	I
The student understands that he may select literature to become better informed about issues, government policies and figures and legislation, making him better able to participate intelligently in democratic institutions.	K	14-1	U

3 Reading
3.6 Purpose for Reading

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.62 Reading for Information (cont.)			
The student is able to do research by reading in the library in order to locate in several sources the information which is needed to solve a problem or prove a point.	P	99-6d	I
The student is able to select and evaluate information in reading which supports a generalization or a conclusion in answering specific questions he has or those which have been raised by the teacher or through class discussion.	P	99-5d	I
The student is able to read with a variety of information gathering functions in mind, e.g., to generalize, to summarize, to organize, to classify, to evaluate critically, etc.	P	99-3c, 4b, 5d	I
The student is able to use reading to examine statements to determine whether they represent fact or opinion.	P	99-3c	P
The student is able to read a story selectively for particular information: (e.g., for recalling the sequence of events in a story, for locating the part of a story which describes a character, for selecting the part of the story which expresses emotions, etc.).	P	99-4c (1)	I
The student is able to skim read over a passage: a) to determine the main idea quickly, b) to make a preliminary survey, c) to locate specific facts and significant details efficiently, and d) to review material.	P	99-6b	I

Language Arts

3 Reading
3.6 Purpose for Reading

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.63 Reading for Communication The student is able to share his reading interests and experiences with others and thus develop his power to express what he feels and understands.	P	14-1	P

Language Arts

3 Reading
3.6 Purpose for Reading

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.64 Reading for Self-knowledge and Development			
The student knows that one of the major uses of fiction is to reveal or illuminate reality even though the characters and events are fictitious.	K	14-3, 4	I
The student is able to develop discriminative taste through a knowledge of a wide variety of literature and the criteria for their selection.	P	14-1	I
The student is able to be more sensitive to beauty and human feeling through reading and applying literature to his personal experience.	P	14-1	P
The student is able to utilize the different points of view in literature as a means of looking at his own experience in a new light.	P	14-1	U
The student is able to expand his ability to respond emotionally through his vicarious emotional responses to works of literature.	P	14-1	P
The student is able to expand the range of his emotional responses by empathizing with characters' feelings.	P	14-1	P
The student is able to expand his view of his possibilities by identifying with people and situation encountered in stories.	P	14-1	P
The student is better able to cope with his conflicts since he identifies with fictional characters in his reading and learns from the fact that they share conflicts, characteristics, attitudes, and needs with him.	P	14-4	P

3 Reading
3.6 Purpose for Reading

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.64 Reading for Self-knowledge and Development (cont.)			
The student is able to apply what he reads from a particular work to his own life experience and thereby form more meaningful self-concepts.	P	14-1	I

Language Arts

3 Reading
3.7 Reading Efficiency
3.71 Mechanics of Reading

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.711 Vocalization			
The student knows that his reading rate will increase if he avoids forming words visibly with the lips or visibly in the throat.	K	14-1	P
The student is able to avoid vocalizations in silent reading--forming words with the lips and invisibly in the throat.	P	14-1	P

Language Arts

3 Reading
3.7 Reading Efficiency
3.71 Mechanics of Reading

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.712 Eye Span			
The student knows that he can increase his reading rate by expanding his eye span and by keeping his head and fingers stationary.	K	14-1	I
The student is able to expand his eye span and keep his head and fingers stationary.	P	14-1	I

Language Arts

3 Reading
3.7 Reading Efficiency
3.71 Mechanics of Reading

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.713 Word Attack Skills			
The student knows that he can increase his reading rate through the use of configuration clues, structural analysis, phonetic analysis, and phonetic principles.	K	14-1	I
The student is able to employ the following word attack skills in reading: context clues, configuration clues (visual), structural analysis, phonetic analysis, phonetic principles.	P	14-1	I

Language Arts

3 Reading
3.7 Reading Efficiency
3.71 Mechanics of Reading

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.714 Sight Vocabulary			
The student knows that he can increase his reading rate by expanding sight vocabulary.	K	14-1	I
The student is able to expand his sight vocabulary by memorization of new words, learning new words from context, etc.	P	14-1	I

3 Reading
3.7 Reading Efficiency

Goal	**Knowledge or Process**	**Program Goal to Which this Goal Contributes**	**Appropriate Initial Instructional Level P/I/U/H**
3.72 Comprehension Skills			
The student knows that comprehension is increased if rate of reading is adjusted both to purpose for reading and to the degree of familiarity the reader brings to the concepts and vocabulary of the material.	K	14-1	I
The student is able to adjust rate of reading to purpose for reading and according to his familiarity with the concepts and vocabulary of the material.	P	14-1	I

3 Reading
3.7 Reading Efficiency

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.73 Visual Perception			
The student knows that his reading rate will improve by his overcoming or compensating for any defects in the following vision factors: a) eye movements--(1) see clearly far away and close up, (2) from left to right, (3) up, down, and diagonally, and (4) to follow objects moving in all directions; b) eye-hand coordination--ability of eyes and mind to direct the hands for a specific purpose; c) visual form perception--ability to establish mental images so clearly that recall will include form, texture, weight, etc.	K	14-1	I
The student is able to employ eye movement, eye-hand coordination, and visual form perception correctly in reading.	P	14-1	P

Language Arts

3 Reading
3.8 Oral Reading

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.81 Voice - Pitch and Modulation			
The student knows that appropriate use of quality of voice: pitch, modulation, volume help one to be an effective oral reader.	K	99-7d	I
The student is able to read aloud more effectively by improving the quality of his voice--pitch, a well modulated voice, volume, loud enough for all intended listeners.	P	99-7d	I

Language Arts

3 Reading
3.8 Oral Reading

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.82 Smoothness of Phrasing, Enunciating, Pronouncing Rate			
The student knows that phrasing, enunciation, pronunciation, and rate adjusting help to become an effective oral reader.	K	99-7b	I
The student is able to read aloud more effectively by: a) phrasing-reading in meaningful units, b) enunciation--speaking clearly by making each word distinct, though a part of the larger unit (phrase), c) pronunciation--putting proper stress and sounds together to make words, d) rate--adjusting to the selection being read (mood and action portrayed in selection).	P	99-7b	I

3 Reading
3.8 Oral Reading

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
3.83 Relation to Audience: Tone, Expression, Voice Inflection			
The student knows that interpreting material for the audience: tone and expression, voice inflection, help to become an effective oral reader.	K	99-7e	I
The student is able to read aloud more effectively by interpreting material for the audience: a) tone and expression--putting the right emphasis on portions according to the meaning to be conveyed, b) voice inflection--giving the audience meaning clues by the range of the voice.	P	99-7e	I
The student knows that listening and watching for clues from his audience help to become an effective oral reader.	K	99-7	I
The student is able to read aloud more effectively by being aware of his audience: a) listening for auditory clues from the audience as to when to pause (laugh, clap, sigh, etc.), and b) watching for visual clues from the audience (facial expressions, movement).	P	99-7	I

Language Arts

4 Writing
4.1 Mechanics of Writing

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.11 Handwriting			
The student knows that cursive letters are slanted and joined. The pencil is not lifted until the end of a word.	K	14-11	P
The student knows that manuscript letters are formed by using straight lines and circles in a top to bottom progression. Letters are made separately with the pencil lifted after each stroke.	K	14-11	P
The student is able to write his name in manuscript form and in cursive form.	P	14-11, 99-8, 99-1	P
The student is able to write upper and lower case letters in manuscript and/or cursive form.	P	14-11	P
The student is able to use appropriate spacing of letters and words to develop legible handwriting.	P	14-11	P
The student knows that body position, paper position, and pencil position affect legibility.	K	14-11	P
The student is able to improve legibility through appropriate paper, pencil, and body position.	P		P
The student is able to analyze his own handwriting according to letter formation, slant, and spacing.	P	14-11	P
The student is able to use margins and headings appropriately.	P	14-11	I

Language Arts

4 Writing
4.1 Mechanics of Writing
4.12 Spelling

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.121 Learning - Proofreading, Dictionary, Rules, Accuracy, Systems			
The student is able to perceive likenesses and differences in the spelling of words.	P	14-11	I
The student is able to proofread his own writing to find words with omitted letters, letter reversals, improper endings and questionable spellings.	P	14-11	I
The student knows that given a single syllable word or a word accented on the last syllable which ends in a single consonant and is preceded by a single vowel, he usually doubles the final consonant before adding a suffix beginning with a vowel (e.g., hit, hitting; drop, dropped).	K	14-11	I
The student knows that i comes before e except after c or when sounded as a (neighbor, weigh).	K	14-11	I
The student is able to spell words with ie or ei combinations correctly in writing.	P	14-11	I
The student knows that dictionaries are the most comprehensive and authoritative source for correct spelling.	K	14-11	I
The student is able to use dictionaries without assistance to help him spell words correctly.	P	14-11	I

Language Arts

4 Writing
4.1 Mechanics of Writing
4.12 Spelling

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.122 Plurals			
The student is able to form the plural of numbers and letters by adding apostrophes. (There were four five's in the deck.)	P	14-11	U
The student is able to form the plural of regular nouns by adding s and es to nouns ending in sh, s, z, or ch (except when ch is pronounced as k).	P	14-11	I
The student knows that some nouns have the same spelling for both singular and plural forms (e.g., sheep, deer, wheat, golf, moose).	K	14-11	U
The student knows that the plural of nouns ending in o preceded by a vowel is formed by adding s but the plural form of nouns ending in o preceded by a consonant varies between s and es.	K	14-11	U
The student is able to form the plural of nouns ending in o.	P	14-11	
The student knows that some words ending in f or fe form the plural by changing the f to v and adding es.	K	14-11	I
The student is able to form the plural of words ending in f or fe by changing the f to v and adding es, where this is the appropriate method of forming the plural (wolf, wolves; half, halves).	P	14-11	I
The student knows that when words end in y preceded by a consonant the y is changed to i before adding es, and words ending in y preceded by a vowel retain the y and s is added (e.g., berry, berries; turkey, turkeys).	K	14-11	I

Language Arts

4 Writing
4.1 Mechanics of Writing
4.12 Spelling

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.123 Homonyms			
The student knows that a homonym is a word that has the same pronunciation as another, but has a different meaning.	K	14-11	I

Language Arts

4 Writing
4.1 Mechanics of Writing
4.12 Spelling

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.124 Affixes			
The student knows that when prefixes are added to root words, double letters occur if the last letter of the prefix is the same as the first letter of the root word (e.g., cooperate).	K	14-11	I
The student knows that when words end in a final silent e, the e is usually dropped before adding a suffix beginning with a vowel (e.g., hope, hoped).	K	14-11	I
The student is able to use the following word endings: ing, ed, and s appropriately to indicate forms of verbs.	P	14-7	P
The student knows that there are word beginnings (prefixes) and ending (suffixes) that change or add to the meaning of words.	K	14-7, 10	P
The student is able to distinguish the affixes from the root parts of words.	P	14-11	I
The student is able to use affixes and root words as an aid in spelling words.	P	14-11	I

Language Arts

4 Writing
4.1 Mechanics of Writing
4.12 Spelling

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.125 Syllables			
The student knows that the syllables - ble, cle, dle, gle, kle, ple, tle, zle - often constitute the final syllable of a word (e.g., simple).	K	14-11, 7	I
The student knows that prefixes and suffixes constitute separate syllables.	K	14-11, 7	I
The student knows that every syllable must contain a vowel.	K	14-11, 7	I
The student is able to divide words into syllables between double consonants or between two consonants (e.g., al-low).	P	14-11, 7	I
The student is able to recognize syllables by the vowel sounds heard - not seen.	P	14-11, 7	I
The student knows that in forming syllables, a single consonant between vowels usually goes with the second vowel (e.g., de-bate).	K	14-11, 7	I
The student knows that dividing words into syllables is an aid to spelling and pronunciation.	K	14-11	P

Language Arts

4 Writing
4.1 Mechanics of Writing
4.12 Spelling

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.126 Abbreviations			
The student knows that acronyms are abbreviations formed from the first letter or first few letters of several words (e.g., NATO, North Atlantic Treaty Organization).	K	14-11	U
The student knows the standard abbreviations for dates, time, measurements, and governmental agencies.	K	14-11	I
The student is able to appropriately use the standard abbreviations for dates, time measurement, and governmental agencies.	P	14-11	I
The student knows the meaning of the following abbreviations: i.e., e.g., etc., p., &, +.	K	14-11	U

Language Arts

4 Writing
4.1 Mechanics of Writing
4.12 Spelling

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.127 Contractions			
The student knows that a pronoun subject and an auxiliary verb can be contracted (e.g., you'll, he'd, I'm).	K	14-7, 9, 10	U
The student knows the final unpronounced e in a word is usually kept when a suffix beginning with a consonant is added to the word (e.g. subtley).	K	14-11	I
The student is able to contract have or do with not (e.g., don't).	P	14-7, 14-9, 14-10	I
The student is able to recognize the letter(s) omitted in a contraction.	P	14-7, 14-9, 10	P

Language Arts

4 Writing
4.1 Mechanics of Writing
4.13 Punctuation

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.131 Linking			
The student knows that a semi-colon may be used in place of a coordinating conjunction between main clauses.	K	14-7, 10	I
The student knows that the semicolon may be used to connect clauses and appears before words such as the following: accordingly, moreover, nevertheless, furthermore, otherwise, therefore, however, consequently, also, thus, hence, etc.	K	14-13	U
The student knows that the semicolon, colon, dash, and hyphen are used to link words, phrases, and clauses.	K	14-13	I
The student knows that the semicolon is used between main clauses if there are commas within the clauses and between items in a series if the items contain commas.	K	14-13	U
The student is able to use the semicolon appropriately in sentences and series.	P	14-13	U
The student knows that the colon is used after an introductory statement.	K	14-13	U
The student knows that a colon is used between main clauses when the second clause explains or restates the idea in the first.	K	14-13	U
The student knows that the colon is used after the salutation of a business letter.	K	14-13	I
The student knows that the colon is used (to separate the hour from the minute) when writing the time, between volume and number or volume and page number of a periodical, and between chapter and verse of a passage in the Bible.	K	14-13	I

Language Arts

4 Writing
4.1 Mechanics of Writing

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.13 Punctuation			
The student knows that punctuation is used in writing to separate sentences, independent clauses, and parenthetical phrases in order to change meaning.	K	14-13	P

4 Writing
4.1 Mechanics of Writing
4.13 Punctuation

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.131 Linking (Cont.)			
The student knows that the colon is used before a list of any kind introduced formally by such words as "the following" or "as follows."	K	14-13	I
The student knows that the dash is used to indicate a break in a sentence, a parenthetical element, or an omission.	K	14-13	U
The student knows that fractions used as adjectives before a noun are hyphenated (e.g., half-hour, quarter-horse).	K	14-13	U
The student knows that a hyphen is used to prevent confusion (re-collect, recollect) or an awkward spelling (semi-invalid, semiinvalid).	K	14-13	U
The student knows that a hyphen is always used with a noun that contains the prefix ex, self, all, or the suffix elect (e.g., ex-player, ex-wife, president-elect).	K	14-13	U
The student knows that a hyphen is used with all prefixes before proper nouns (e.g., ex-president, vice-chairman).	K	14-13	U
The student knows that hyphens are used in a compound adjective (e.g., non-restrictive, all-inclusive).	K	14-13	U
The student knows that hyphens are used in compound numbers (e.g., twenty-one, twenty-nine).	K	14-13	I
The student is able to use hyphens appropriately in his writing.	P	14-13	U

Language Arts

4 Writing
4.1 Mechanics of Writing
4.13 Punctuation

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.132 Separating			
The student knows that a period is used at the end of a statement or an abbreviation.	K	14-13	P
The student knows that a question mark follows a question.	K	14-13	P
The student knows that if a question is a direct quote, the question mark is placed inside the quotation marks.	K	14-13	P
The student knows an exclamation is followed by an exclamation mark.	K	14-13	I
The student knows that if an exclamation is a direct quote, the exclamation mark is placed inside the quotation marks.	K	14-13	I
The student knows that a comma is used after the salutation of a friendly letter and after the complimentary closing of a letter.	K	14-13	I
The student knows that commas are used to separate items in a series or the short main clauses in a series.	K	14-13	I
The student knows that a comma is used before the following words: or, nor, for, and yet - when they join main clauses.	K	14-13	I
The student knows that commas set off expressions which interrupt the sentence; words in direct address; the words, well, yes, no, why, and oh when used at the beginning of a sentence; items in dates and addresses.	K	14-13	I
The student knows that a comma is used after an introductory adverbial clause, an introductory participial phrase, or a succession of introductory phrases.	K	14-13	U

4 Writing
4.1 Mechanics of Writing
4.13 Punctuation

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.132 Separating (Cont.)			
The student knows that commas are used to separate two parts of a sentence which, if combined, would convey an unintended meaning.	K	14-13	U
The student is able to use the comma appropriately in sentences.	P	14-13	I

Language Arts

4 Writing
4.1 Mechanics of Writing
4.13 Punctuation

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.133 Enclosing			
The student understands that parentheses are used to enclose incidental explanatory matter not considered of major importance in a sentence.	K	14-13	U
The student knows that quotation marks enclose a direct quotation.	K	14-13	I
The student knows that quotation marks enclose titles or chapters of books, magazine articles, essays, songs, short stories, and short poems.	K	14-13	U
The student knows that single quotation marks are used to enclose a quotation within a quotation.	K	14-13	H
The student is able to use quotation marks appropriately.	P	14-13	I

Language Arts

4 Writing
4.1 Mechanics of Writing
4.13 Punctuation
4.134 Indicating Omissions

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.1341 Apostrophe			
The student knows that to form the possessive of singular nouns and definite pronouns we use an apostrophe and s; for plural nouns ending in s we add only the apostrophe; for plural nouns not ending in s we add both the apostrophe and s.	K	14-13	I
The student is able to use an apostrophe and s to form the plural of letters, numbers, symbols, and words.	P	14-13	U
The student knows that the words minute, hour, day, week, month, and year, when used as possessive adjectives, require an apostrophe. Words indicating amount in cents or dollars, when used as possessive adjectives, require apostrophes (a minute's work; five dollars' worth).	K	14-13	I
4.1342 Triple Periods (Ellipsis)			
The student knows that an ellipsis (three periods) is used to indicate omissions in writing.	K	14-13	I

Language Arts

4 Writing
4.1 Mechanics of Writing

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.14 Capitalization The student knows that the following are capitalized: the first words in a sentence, the first word in a direct quotation, the pronoun I, the salutation of a letter, the first word of the closing of a letter, the titles of specific courses, and the first word in a line of poetry, with numerous contemporary exceptions.	K	14-13	I

Language Arts

4 Writing
4.1 Mechanics of Writing
4.14 Capitalization

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.141 Proper Nouns, Adjectives, Pronouns			
The student is able to capitalize proper nouns to signal the name of a specific person, place, or thing.	P	14-13	P
The student knows that it is customary to capitalize references to the deity (God).	K	14-13	I
The student is able to write the pronoun I with a capital letter.	P	14-11	P
The student knows that the names of months and holidays are capitalized.	K	14-13	P
The student is able to capitalize the names of months and holidays.	P	14-13	P
The student knows that a person's title or abbreviation of the title should be capitalized if it precedes his name.	K	14-13	P
The student is able to capitalize the title of a person when it precedes his name.	P	14-13	P
The student knows that some words indicating position or title may be capitalized depending on the specific use (e.g., President X; the president of a country).	K	14-13	U
The student is able to capitalize the title of a person if it refers to a government official or to someone for respect.	P	14-13	I
The student knows that a proper adjective is capitalized.	K	14-13	I

Language Arts

4 Writing
4.1 Mechanics of Writing
4.14 Capitalization

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.142 Sentences, Phrases, Titles			
The student is able to capitalize the first word in sentences.	P	14-13	P
The student knows that the first word and important words of titles of books, magazines, articles, newspapers, historical documents and works of art should be capitalized.	K	14-13	I
The student is able to capitalize the first word and important words of titles of books, magazines, articles, newspapers, historical documents, important persons, and works of art (statues, movies, pictures, musical compositions, historical monuments).	P	14-13	I
The student is able to capitalize the first word in a direct quotation.	P	14-13	I
The student is able to capitalize the first word in the greeting and closing of a letter.	P	14-13	I

4 Writing
4.2 Forms of Written Communication

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.21 Major Forms			
The student is able to write in the following forms of discourse: (a) description, (b) narration, (c) exposition, and (d) argumentation.	P	14-10	I

Language Arts

4 Writing
4.2 Forms of Written Communication
4.21 Major Forms

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.211 Biography, Autobiography			
The student is able to write a biographical sketch of a classmate, author, famous person, historical character, etc., which includes such basic facts as: birthdate, place, education, significant events, and outlook on life.	P	14-4, 10	U
The student is able to write an autobiography which gives his account of his life and beliefs.	P	14-4, 10	U

Language Arts

4 Writing
4.2 Forms of Written Communication
4.21 Major Forms

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.212 Exposition			
The student is able to write a formal essay in which he presents his ideas and arguments on a subject with authority in a dignified and impersonal tone.	P	14-10	U
The student is able to write an informal essay in which he presents his ideas on a subject in a relaxed, humorous, and often whimsical manner.	P	14-2	U
The student is able to use the following techniques of expository writing: definition, description of process, comparison and contrast, and classification.	P	14-10	U
The student is able to write an expository paper using a central idea and a group of facts that support the idea.	P	14-10	U
The student is able to write an expository paper which develops an idea, defends an opinion, or interprets a literary work.	P	14-10	U
The student is able to write an informal definition of a term by first assigning the term to its general class and then developing it from his own point of view.	P	14-10	U
The student is able to write a comparison and contrast exposition showing similarities and differences of objects, people, places, and events in size, shape, time, function, age, etc.	P	14-10	U
The student is able to write a process paper; one which describes in detail the characteristics and functions of the steps in any process.	P	14-10	U
The student is able to use expository techniques in answering essay questions, being aware of special considerations of preparation and time limitations.	P	14-10	H

Language Arts

4 Writing
4.2 Forms of Written Communication
4.21 Major Forms

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.213 Descriptive Writing			
The student is able to write descriptively by using details and images to create a unity of impression.	P	14-10	I
The student is able to write a description of either an abstract idea or a physical object in terms of its impression on one or more of his senses.	P	14-4, 10	I

Language Arts

4 Writing
4.2 Forms of Written Communication
4.21 Major Forms

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.214 Persuasive Writing The student is able to write letters to newspapers, businesses, and political figures to broaden his experience in writing to different people for a variety of purposes.	P	14-10	U

Language Arts

4 Writing
4.2 Forms of Written Communication
4.21 Major Forms

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.215 Reports			
The student is able to write a report that is concise in language and form, unified in thought, consistent in style, and accurate in information.	P	14-10	U

4 Writing
4.2 Forms of Written Communication

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.22 Literary Analysis			
The student is able to write a description of a character's personality using his actions, his physical description his thoughts and attitudes, and the author's attitude toward him.	P	14-4	U
The student is able to write an analysis of the techniques used by an author in literary selection.	P	14-10	H
The student knows the terminology used to analyze and discuss character: archetypes, motivation, protagonist, antagonist, conflict, flat character, round character, dialogue, character foil, empathy, etc.	K	14-4	H
The student is able to explain how point of view, choice of words, sentence structure, imagery, dialogue, and tone are used by an author to develop character, mood, or plot.	P	14-10	H
The student is able to write exposition that communicates his knowledge of and response to a literary selection.	P	14-10	I

4 Writing
4.2 Forms of Written Communication
4.21 Major Forms

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.216 Summary and Outlining			
The student is able to write a summary of an activity or reading which is concise and clear.	P	14-10	U
The student is able to write an outline using from two to five subtopics (I, A, 1, a, (1)) in the appropriate form.	P	14-10	I
The student is able to outline in order to demonstrate his ability to recognize organization in a piece of writing and to assist him in organizing his own materials.	P	14-10	U

Language Arts

4 Writing
4.2 Forms of Written Communication
4.22 Literary Analysis

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.221 Reviews			
The student is able to write a book review that compares two or more books by the same author or books devoted to the same topic.	P	14-10	U
The student is able to write a book review which presents his subjective response; whether or not he likes a book and why.	P	14-4, 14-10	U

4 Writing
4.2 Forms of Written Communication

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.23 Creative Writing The student is able to write new and fresh expressions (words, phrases, sentences) based upon his own observations and thoughts.	P	14-4, 10	P

Language Arts

4 Writing
4.2 Forms of Written Communication
4.23 Creative Writing

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.231 Poetry			
The student knows that Haiku is a major form of Japanese verse which has seventeen syllables, employs highly evocative allusions and comparisons, and creates a single image.	K	14-4	I
The student is able to use the form of Haiku to create an image.	P	14-4	I
The student is able to write in the following poetic forms: cinquain, couplet, limmerick ballad, haiku, free verse.	P	14-4	P
The student is able to write poetry using the cinquain form.	P	14-4	I

Language Arts

4 Writing
4.2 Forms of Written Communication
4.23 Creative Writing

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.232 Fantasy			
The student knows fantasy is characterized by the play of free imagination.	K	14-4	I
The student is able to write a fantasy using free imagination to develop preternatural events and characters.	P	14-4, 10	P
The student is able to write animal stories which characterize animals talking as humans, animals talking as animals, or animals objectively stated.	P	14-4	U
The student is able to write original myths, fables, and tall tales.	P	14-4	U
The student is able to write a tall tale using a hero-type person with exaggerated characteristics of size, endurance, actions, speech, or importance.	P	14-4	I

Language Arts

4 Writing
4.2 Forms of Written Communication
4.23 Creative Writing

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.234 Satire			
The student is able to write a parody or satire about some aspect of life he sees as foolish or meaningless.	P	14-4	H

Language Arts

4 Writing
4.2 Forms of Written Communication
4.23 Creative Writing

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.233 Stories and Drama			
The student is able to write a short story containing the following: (a) one well-developed character, (b) descriptive and narrative paragraphs, (c) a conflict over ideas, (d) concise plot, (e) elements of suspense and surprise.	P	14-4	U
The student is able to establish setting in time and place in writing a story by including one or more of the following: (a) time in history, (b) season of the year, (c) geographic place, (d) particular circumstances of the environment, (e) the cultural milieu.	P	14-4	H
The student is able to write a one-act play using dialogue to develop character, plot and theme in an appropriate form.	P	14-4	H
The student is able to write a story appropriate for young children which develops plot, character and theme.	P	14-4, 10	I
The student is able to develop characters in the writing of short stories and poems that speak to us in a way that reveals or implies the following: (a) historical era, (b) geographic origin, (c) sex and age, (d) education, (e) socio-economic status, (f) values.	P	14-4	H
The student is able to write a story which demonstrates the art of placing obstacles in the path of the protagonist's foibles or flaws, the antagonist as a man or a group of men, or as nature, coincidence, fate, or the gods.	P	14-4	H
The student is able to use foreshadowing in his writing to suggest what will happen later in the story.	P	14-4	U
The student is able to write a narrative based partly upon his own experience.	P	14-4, 10	U

4 Writing
4.2 Forms of Written Communication

Goal	**Knowledge or Process**	**Program Goal to Which this Goal Contributes**	**Appropriate Initial Instructional Level P/I/U/H**
4.24 Research Paper			
The student is able to use the following abbreviations in a research paper: (a) ibid, (b) loc. cit., (c) op. cit., (d) et al., (e) f. or ff., (f) p. or pp., (g) ed., (h) sic, (i) vol(s).	P	14-10	H
The student is able to write a research paper which includes: (a) title page, (b) introductory statement that explains and limits the topic, (c) relevant facts on the topic, (d) logical presentation, (e) conclusions drawn as a result of research, (f) documentation with footnotes, (g) complete bibliography.	P	14-10	H
The student is able to use conventions of footnoting consistently in acknowledging quoted or borrowed ideas.	P	14-10	H

Language Arts

4 Writing
4.2 Forms of Written Communication
4.24 Research Paper

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.241 Note Taking and Journals			
The student is able to write minutes for a meeting, including announcements, reports of concensus, and resolutions.	P	14-10	U
The student is able to keep a journal of his ideas, reactions to experience, and responses to books, movies, and issues.	P	14-10	I
The student is able to take lecture notes by concentrating on the main ideas, salient points, and examples and by being aware of the lecturer's signals (intonation, facial expressions, gestures, transitional devices, etc.).	P	14-10, 12	H
The student is able to take notes on his reading by recording the main ideas, outlining, listing key terms, asking questions, and using other mnemonic devices.	P	14-10, 12	U

Language Arts

4 Writing
4.2 Forms of Written Communication
4.25 Business Writing

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.251 Business Letters			
The student is able to write business letters that are concise, strategic, and courteous: letters of application, complaint, congratulations, request, introduction, acknowledgment, order, inquiry, transmittal, and claim.	P	14-10	H
The student is able to use the block and the indented form (and their variations) of business letters.	P	14-10	U
The student is able to write business letters which contain the following parts: heading, inside address, salutation, body, closing signature, and enclosures.	P	14-10	I

4 Writing
4.2 Forms of Written Communication
4.25 Business Writing

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.252 Personal Business Communications			
The student is able to use the following forms which relate to personal business: job application, credit application, personal resume, request for job interview.	P	14-10	H

Language Arts

4 Writing
4.2 Forms of Written Communication
4.25 Business Writing

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.253 Miscellaneous Business Communications			
The student is able to write brief communications such as telegrams, announcements, bulletins, and classified ads, emphasizing key words (mainly nouns and verbs), omitting wherever possible such determiners as "the" and "a," deleting unnecessary modifiers and qualifiers, and using appropriate abbreviations.	P	14-10	H

4 Writing
4.2 Forms of Written Communication

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.26 Journalism			
The student is able to write sports and news articles, editorials (persuasive writing), human interest (feature) stories, and advertisements.	P	14-10	U
The student is able to write a newspaper article which contains (a) the five W's (when, what, where, why, and who), (b) the inverted pyramid form (significant details at the beginning of the article), (c) no statements of personal opinion, (d) identification of source(s), (e) paragraphs independent of the others in the article to allow cutting when necessary.	P	14-10	U
The student is able to write headlines for newspaper articles in the space allotted, while giving the essential information in an appealing manner.	P	14-10	I
The student is able to write a television or movie review which includes basic information, states an opinion, and makes a recommendation.	P	14-10	U

Language Arts

4 Writing
4.2 Forms of Written Communication

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.27 Social Communication			
The student is able to write the following informal social forms: messages, directions, personal letters.	P	14-10	I
The student is able to write a social letter using heading, greeting, body, closing, and signature.	P	14-10	I
The student is able to write the following kinds of formal social communications: thank-you notes, responses to invitations, and speeches for public presentations.	P	14-9	U

4 Writing

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.3 Using Writing as Means of Self-Expression			
The student understands that the discipline required for writing often serves to make one more certain of his own thoughts and ideas.	K	14-9	I
The student understands that the physical act of writing often clarifies one's ideas and emotions.	K	14-9	I
The student is able to write a review in which he summarizes his reactions to literary selections.	P	14-1	U
The student is able to express his moods, state of mind concerning himself, relationship with others, and personal experiences in writing.	P	14-9	P

4 Writing

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.4 Use and Choice of Language, Conventions, and Devices in Achieving Effects			
The student understands that in writing a variety of relationships exist between the author, the content, and the reader and that these relationships shape and are shaped by the choice of language, convention, and devices the author employs.	K	14-9	H
The student knows that the choices the writer makes are contingent upon his perception of his purpose and his audience.	K	14-9	H
The student is able to choose language that is appropriate by considering the time in which he is writing and the audience for which he is writing.	P	14-4	H

Language Arts

4 Writing
4.4 Use and Choice of Language, Conventions, and Devices in Achieving Effects

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.41 Style			
The student is able to adjust his style of writing according to the genre and subject with which he is working.	P	14-4	U
The student is able to write in formal and informal language to meet the requirements of the situation.	P	14-4	I
The student is able to write an evaluation of an author's style by using the following tools of stylistic analysis: (a) progressive refinement of a core statement; (b) verb density; (c) linking of transitional expressions; (d) repetition of clausal and phrasal structure; (e) figurative expressions; (f) imagery; (g) relation of sentence pattern to content; (h) ratio of active and passive sentences; (i) number of embedded sentences.	P	14-4	H

Language Arts

4 Writing
4.4 Use and Choice of Language, Conventions, and Devices in Achieving Effects

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.42 Tone and Mood			
The student knows that mood is the generalized feeling that the setting, tone, and action evoke from the reader such as the feeling experienced by the reader of Poe's "Fall of the House of Usher."	K	14-4	U
The student is able to use setting, tone, and action to convey a mood (general emotional feeling).	P	14-4	I
The student is able to develop tone in a written composition - ironic, serious, tragic, objective, alienated, solemn, sportive, satirical, or sentimental - to enhance meaning.	P	14-4	H
The student is able to use the degree of irony - light-hearted, thought provoking, vicious - that will help create his desired tone and mood.	P	14-4	U
The student is able to use setting, tone, and action to convey a mood (general emotional feeling).	P	14-4	I

Language Arts

4 Writing
4.4 Use and Choice of Language, Conventions, and Devices in Achieving Effects

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.43 Word Choice			
The student is able to use descriptive phrases or sentences to describe an action, paint a verbal picture, or denote a sound.	P	14-4	I
The student knows that texture is the density of verbs and modifiers and the complexity of sentence structure. (A sentence derived from many embedded sentences would have a dense texture.)	K	14-4	H
The student is able to increase his use of verbs, modifiers, and the complexity of his sentences in order to create an effective and distinctive style.	P	14-4	I
The student is able to use specific and expressive adjectives and verbs to increase the vividness of his description.	P	14-4	I
The student is able to appeal to the reader's senses (sight, hearing, taste, smell, touch) to increase the vividness of his description.	P	14-4	I
The student is able to write a dialogue which is consistent with the characters, setting and action.	P	14-4	I
The student is able to use the titles that arouse reader interest, foreshadow events, or identify a key element(s) in a work.	P	14-4	P
The student is able to use foreign slang or colloquial expression in his writing when they are more expressive or more appropriate than the more familiar standard expression.	P	14-4	H

4 Writing
4.4 Use of Choice of Language, Conventions, and Devices in Achieving Effects

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.43 Word Choice (Cont.)			
The student is able to use connotative words to create an impression toward his subject.	P	14-4	U
The student is able to express word connotations (emotive, loaded, color, provocative words) that are favorable, unfavorable, or neutral.	P	14-9, 10	P
The student is able to use words to evoke favorable, unfavorable, or neutral emotions in his audience.	P	14-9, 10	P
The student is able to select words with a level of specificity or generality appropriate to the requirements of a particular communication.	P	14-9	P
The student is able to use slang when it is appropriate for the audience or purpose.	P	14-9	U
The student knows that formal language tends to deal with complete sentences, longer and more complex sentences, academic or technical vocabulary, and a serious tone; whereas, informal language deals more frequently with sentence fragments, shorter sentences, slang and colloquial expression, and a conversational tone.	K	14-4	I

Language Arts

4 Writing
4.4 Use and Choice of Language, Conventions, and Devices in Achieving Effects

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.44 Point of View The student knows that the author's point of view is revealed both directly and indirectly through his choice and organization of words.	K	14-4	U

Language Arts

4 Writing
4.4 Use and Choice of Language, Conventions, and Devices in Achieving Effects

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.45 Images and Symbols			
The student is able to develop a pattern of images throughout a story, thus contributing to the overall meaning.	P	14-4	U
The student is able to use symbols in his writing as repositories of meaning. Universal symbols that are available and often convenient include: the many meanings associated with the sea, moon, sun, and other natural objects and phenomena.	P	14-4	H

Language Arts

4 Writing
4.4 Use and Choice of Language, Conventions, and Devices in Achieving Effects

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.46 Figures of Speech			
The student is able to use original and clear expressions in his writing, avoiding cliches and bad puns except when appropriate.	P	14-4	U
The student is able to use fresh figures of speech to provide a new interpretation of experiences or insight.	P	14-4	U

Language Arts

4 Writing
4.4 Use and Choice of Language, Conventions, and Devices in Achieving Effects
4.46 Figures of Speech

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.461 Simile and Metaphor The student is able to use metaphors and similes, the two most common forms of figurative language, to enrich his writing with meaningful comparisons.	P	14-4	U

Language Arts

4 Writing
4.4 Use and Choice of Language, Conventions, and Devices in Achieving Effects
4.46 Figures of Speech

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.462 Hyperbole The student is able to use hyperboles and extreme exaggeration of fact to give added meaning to his writing.	P	14-4	H

4 Writing
4.4 Use and Choice of Language, Conventions, and Devices in Achieving Effects
4.46 Figures of Speech

Goal	**Knowledge or Process**	**Program Goal to Which this Goal Contributes**	**Appropriate Initial Instructional Level P/I/U/H**
4.463 Personification The student is able to use personification (a figure of speech in which an inanimate object or an abstract concept is described as being endowed with human attributes, powers, or feelings) to provide unique ways of presenting a theme.	P	14-4	P

Language Arts

4 Writing
4.4 Use and Choice of Language, Conventions, and Devices in Achieving Effects
4.46 Figures of Speech

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.464 Other Figures of Speech			
The student is able to use metonymy (use of the name of one thing for that of another associated with or suggested by it) in his writing to achieve a dramatic and symbolic effect (e.g., "the White House has decided" for "the President has decided").	P	14-4	H
The student understands that an epigram is a terse-pointed statement which ends with a surprising or witty turn of thought.	K	14-4	U
The student is able to compose and include epigrams in his writing to add witty and surprise effects.	P	14-4	H
The student is able to compose litotes for his writing to impress the reader with the importance or quality of an experience.	P	14-4	H
The student knows that synecdoche names an important part to signify the whole (e.g., All hands on deck).	K	14-4	H
The student is able to use synecdoche (the part is used for the whole or the reverse) in his writing to achieve connotations which attach vividness and high emotional quality.	P	14-4	H

Language Arts

4 Writing
4.4 Use and Choice of Language, Conventions, and Devices in Achieving Effects

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.48 Parody The student is able to write a parody of one author's prose or verse as a way of demonstrating comprehension of his characteristic style.	P	14-4	H

4 Writing
4.4 Use and Choice of Language, Conventions, and Devices in Achieving Effects

Goal	**Knowledge or Process**	**Program Goal to Which this Goal Contributes**	**Appropriate Initial Instructional Level P/I/U/H**
4.47 Sound Effects The student is able to use different patterns of sound repetition in writing poetry to achieve the right effect, with special attention to intonation, stress, pitch, pause, rhyme, onomatopoeia, and alliteration.	P	14-4	U

Language Arts

4 Writing
4.5 Organization

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.51 Form and Structure of Sentences			
The student is able to construct sentences using the following basic English patterns: noun-verb, noun-linking verb-noun, noun-verb-noun, noun-linking verb-adjective, noun-verb-adverb, and noun-verb-noun-noun.	P	14-10	I
The student knows that a simple sentence contains only one main clause.	K	14-10	I
The student knows that a compound-complex sentence contains at least two main clauses and at least one subordinate clause.	K	14-10	I
The student knows that a complex sentence contains a main clause and at least one subordinate clause.	K	14-10	I
The student knows that a compound sentence contains at least two main clauses.	K	14-10	I
The student is able to write sentences omitting common mistakes such as: run-on sentences, sentence fragments, faulty tense changes, non-agreement, non-parallel construction.	P	14-7	U

Language Arts

4 Writing
4.5 Organization

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.52 Processes and Techniques of Writing			
The student is able to use models of professional writing and student writing to give direction to his own work.	P	14-10	U
The student is able to develop his own strategy for the writing process, such as ways of getting ideas and materials, optimum writing conditions, procedures for revision and proofreading, and time allowance.	P	14-9	I

4 Writing
4.5 Organization
4.52 Processes and Techniques of Writing

Goal	**Knowledge or Process**	**Program Goal to Which this Goal Contributes**	**Appropriate Initial Instructional Level P/I/U/H**
4.521 Invention - Choosing Topic and Generating Ideas			
The student is able to choose a topic appropriate to the intended breadth and depth of the composition.	P	14-10	U
The student is able to select a subject, narrow it to a topic, and expand it to a theme statement.	P	14-10	U
The student is able to generate material for his topic by reading, by thinking creatively and analytically, by observing, and by talking with others.	P	14-12	I
The student is able to survey materials for possible sources of information on a given topic.	P	14-2	U
The student is able to use primary and secondary sources of information in his writing.	P	14-10	U
The student is able to use quotations from authorities to give validity to his writing.	P	14-10, 7	U

Language Arts

4 Writing
4.5 Organization
4.52 Processes and Techniques of Writing

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.522 Organization			
The student is able to use a tentative outline as a guide for writing.	P	14-12	I
The student is able to write a unified and coherent paragraph and composition.	P	14-10	U
The student is able to select and pattern sentences and paragraphs according to the overall structure and purpose of his composition.	P	14-10	U
The student is able to write introductory narrative statements that (a) summarize a past event as background for a new story, (b) give details which create an unusual situation or setting, (c) make a dramatic appeal, or (d) create suspense.	P	14-10	U
The student is able to write an introductory statement that (a) includes the thesis of the composition, (b) presents a key to the structure of the composition, (c) offers an appeal and interest for the reader.	P	14-10	H
The student is able to write concluding sentences of narrative paragraphs which (a) express a definite emotional response, (b) lead smoothly into the next paragraph, (c) hint at subsequent solutions or developments.	P	14-10	U
The student is able to write a concluding statement that embodies the controlling idea of the composition without simply repeating exactly what has already been written.	P	14-10	H

Language Arts

4 Writing
4.5 Organization
4.52 Processes and Techniques of Writing

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.523 Methods of Development			
The student is able to use the following methods of theme development: illustration, classification, definition, analysis, comparison and contrast, process explanation, chronological order, support by facts and opinion, cause-effect, spatial order, levels of generality, identification.	P	14-10	H
The student is able to support his generalization with relevant facts and data.	P	14-10	U
The student is able to use illustration - explanation by figure and example - to develop a theme.	P	14-10	U
The student is able to use classification - the arbitrary but systematic arrangement of classes and subclasses - to develop a theme.	P	14-10	U
The student is able to use definition - an elaboration of a term's distinguishing characteristics - to develop a theme.	P	14-10	U
The student is able to use analysis - the investigation of the component parts of a whole and their relationships - to develop a theme.	P	14-10	U
The student is able to use comparison and contrast to develop a theme.	P	14-10	U
The student is able to develop a theme by ordering events chronologically, from past to present, present to past, past to future, or present to future.	P	14-9, 14-10	U

Language Arts

4 Writing
4.5 Organization
4.52 Processes and Techniques of Writing

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.523 Methods of Development (Cont.)			
The student is able to show cause-effect relationships in developing a theme, while realizing the logical pitfalls in such an approach, i.e., Communists are causing the current drug problems.	P	14-10	U
The student is able to indicate spatial order in developing a theme: from here to there, from there to here.	P	14-10	U
The student is able to use identification - a step which clearly focuses upon the subject to be discussed - to develop a theme.	P	14-10	U

Language Arts

4 Writing
4.5 Organization
4.52 Processes and Techniques of Writing

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.524 Paragraphs			
The student understands that paragraphs can combine elements of description, narration, exposition, and argumentation.	K	14-10	H
The student is able to write a paragraph using a topic sentence which is supported and developed by the other sentences in the paragraph.	P	14-10	I
The student is able to write paragraphs in which the topic sentence is at the beginning, in the body, at the end of the paragraph, or in which it is implied and not stated directly.	P	14-10	U
The student knows how to begin new paragraphs when a given sentence is more closely related to the one that follows it than to the one preceding it.	K	14-10	U
The student is able to use the following transitional devices: (a) using words and phrases such as "therefore," "however," "on the other hand," (b) repeating key words, (c) summarizing periodically.	P	14-10	U

Language Arts

4 Writing
4.5 Organization
4.52 Processes and Techniques of Writing

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.525 Logical Development			
The student is able to organize his material in a logical sequence as determined by the subject, purpose, and audience.	P	14-10	U
The student knows that reaching general conclusions based upon particular facts is the inductive reasoning process.	K	14-10	U
The student is able to develop an inductive argument - a movement that goes from examples (specifics) to a generalization.	P	14-10	U
The student knows that reaching particular conclusions based upon general facts is the deductive reasoning process.	K	14-10	U
The student is able to develop a deductive argument - a movement from a generalization to specific examples.	P	14-10	U
The student is able to give the conclusion of a syllogism, given the major and minor premise.	P	14-10	H
The student is able to determine if the syllogisms implicit in his writing are valid.	P	14-10	H

Language Arts

4 Writing
4.5 Organization
4.52 Processes and Techniques of Writing

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
4.526 Proofreading and Revision			
The student is able to substitute specific words for general words.	P	14-10, 7	U
The student is able to make a general statement more specific in order to make the meaning more clear.	P	14-10, 7	U
The student is able to proofread to correct spelling, punctuation, irrelevant sentences, wordiness, illogical order, invalidity, unnecessary sentences, repetition, missing words, flow and euphony.	P	14-10, 7	U

Language Arts

5 Speaking
5.1 Mechanics of Speaking

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
5.11 Using and Controlling the Voice			
The student is able to articulate his sounds and words clearly so that the speech is intelligible.	P	14-5, 10	P
The student is able to maintain a pleasing quality (avoiding breathiness, huskiness, muffled tones, shrillness, and harshness) of voice.	P	14-10	I
The student is able to speak smoothly avoiding (a) use of "uh," (2) unnecessary pauses, (3) monotone.	P	14-5	I
The student is able to vary intonation (stress, pitch, pause) to give meaning and emphasis, to create expectation (through pause), to signal transitions, etc.	P	14-5, 10	P
The student is able to use the correct syllabic stress of a homograph to give correct pronunciation (object' and ob' ject).	P	14-1, 7, 99-1d	I
The student is able to speak with adequate projection in various situations (a play, oral report, class meeting).	P	14-5, 10	P

5 Speaking
5.1 Mechanics of Speaking

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
5.12 Using and Controlling the Body			
The student is able to use voice inflection and facial expression to convey different meanings of identical words.	P	14-9, 10	U
The student is able to use gestures that add meaning and clarity to an oral presentation.	P	14-5	I
The student is able to use gestures that are (or become) natural to him.	P	14-5	P
The student is able to adjust his use of gestures (type and frequency) so that they do not obscure his words.	P	14-5	U
The student is able to use gestures and posture whose meanings are integral with the meaning of his words.	P	14-5	I
The student is able to "extend" his gestures by using objects such as pointers, books, etc.	P	14-5	I
The student is able to establish and maintain eye contact with his audience in order to catch their attention and utilize audience feedback.	P	14-5	U

Language Arts

5 Speaking
5.2 Forms of Oral Communication

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
5.21 Show and Tell			
The student knows the difference between "showing" and "telling."	K	14-5	P

Language Arts

5 Speaking
5.2 Forms of Oral Communication

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
5.22 Storytelling			
The student is able to retell a story based upon what he has seen, thought, heard, or read.	P	14-10, 99-3, 4, 5	P
The student is able to use special body and voice techniques in storytelling (impersonation, emotional expressiveness, movement which represents actions of the characters).	P	14-10	P
The student understands that storytelling can include: (a) the main idea of the story; (b) the emotional tone of the story; (c) emphasis of important incidents; (d) description of characters; (e) the climax of the story.	K	99-5	

5 Speaking
5.2 Forms of Oral Communication

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
5.23 Drama			
The student is able to demonstrate his interpretation of characters and actions through pantomine, charades, and role playing.	P	14-5, 14-9	P
The student is able to use a variety of presentations (puppet shows, shadow plays, rolled movies or TV shows, finger plays and inanimate objects) to interpret thoughts and feelings.	P	14-5, 14-9	P
The student is able to use the following techniques of effective drama: soliloquy, aside, dialogue, eye contact, and gestures which set the scene, articulation of scenes and suspense.	P	14-5, 14-9	U
The student is able to use costumes, lighting, scenery, direction, and props to create dramatic effects.	P	14-5, 14-9	U
The student is able to use voice, gestures, and body movement to demonstrate his interpretation of a character.	P	14-5, 14-9	P

Language Arts

5 Speaking
5.2 Forms of Oral Communication

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
5.24 Discussion			
The student is able to distinguish between the different forms of organized discussion - panel, forum, symposium, and debate.	P	14-9	U
The student is able to conduct and participate in a meeting according to the rules of parliamentary procedure.	P	14-9	U
The student knows the proper parliamentary procedure to open and close a meeting and to introduce and carry a motion.	K	14-9	U
The student knows that paraphrasing is characterized by a rewording of the thought or meaning expressed, whereas a summary presents the substance of an idea in a condensed form.	K	14-9	U
The student is able to use the techniques of paraphrasing and summarizing in group discussions.	P	14-9	U
The student knows that a discussion leader facilitates discussion through summarizing progress, helping the group reach concensus, and encouraging participation.	K	14-9	U

Language Arts

5 Speaking
5.2 Forms of Oral Communication

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
5.25 Interview			
The student knows how to conduct an interview.	K	14-9	U
The student knows that the type of interview determines the method used (e.g., formal, informal, radio, TV, etc.).	K	14-9	U

Language Arts

5 Speaking
5.2 Forms of Oral Communication

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
5.26 Debate			
The student knows the conventions of the thesis statement in a debate includes three elements: (a) thesis statement, (b) proof-related to the thesis, and (c) concluding statement which relates the proof to the thesis and which restates the thesis, showing that the change is desirable.	K	14-9	H
The student is able to construct a thesis statement that follows the conventions of debate.	P	14-9	H
The student is able to assemble and use note cards for rapid reference during a debate.	P	14-9	U
The student is able to organize his arguments in a debate so that he completes his case in the allotted time.	P	14-9	U
The student is able to use the five methods of establishing proof: example, statistics, authority, analogy, and reasoning (either inductive or deductive).	P	14-9	U
The student is able to deliver a refutation argument in accordance with the conventions of debate.	P	14-9	U

Language Arts

5 Speaking
5.3 Use of Speech as a Means of Self-Expression

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
5.31 Attitudes			
The student understands the importance of freedom of speech in a democratic society.	K	14-1	P
The student understands the value of speaking experiences as a means of developing self-expression.	K	14-1	P

Language Arts

5 Speaking
5.3 Use of Speech as a Means of Self-Expression

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
5.32 Dramatic Oral Communication			
The student is able to engage in creative dramatic play based on stories read by the teacher.	P	14-5	P

Language Arts

5 Speaking
5.3 Use of Speech as a Means of Self-Expression

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
5.33 Oral Interpretation The student is able to read orally, utilizing his expression for interpretation.	P	14-9	P

5 Speaking

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
5.4 Use and Choice of Language, Conventions and Devices in Achieving Effects			
The student knows that in order to achieve the desired effects in speaking he must be selective in his use and choice of language, conventions, devices, and ploys.	K	14-5, 9, 10	I
The student knows that normally a person's speaking vocabulary is simpler than his writing vocabulary and not as sophisticated as his reading vocabulary.	K	14-5, 9, 10	U
The student understands the importance of accurate and varied vocabulary in communicating ideas through speaking.	K	14-5, 9, 10	U
The student is able to use accurate and varied vocabulary in communicating ideas through speech.	P	14-5, 9, 10	U
The student is able to use the following devices in speaking: imagery, metaphors, similes, allusions, alliteration, onomatopoeia, irony, rhyme, idioms, etc. to achieve a desired effect.	P	14-5, 9, 10	H
The student is able to present an oral demonstration or explanation using visual aids - pictures, diagrams, transparencies, models, etc.	P	14-5, 9, 10	I
The student is able to use language idiomatically in speaking.	P	14-5, 9, 10	U
The student is able to give a persuasive speech on a controversial point by presenting evidence and by using reason rather than emotion.	P	14-5, 9, 10	U
The student is able to use lively, clear, accurate, and compelling language rather than the cliche in speaking.	P	14-5, 9, 10	U

5 Speaking

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
5.4 Use and Choice of Language, Conventions, and Devices in Achieving Effects (Cont.)			
The student is able to give dramatic readings of dialogue to portray the attitudes and emotions of the character(s).	P	14-5, 9, 10	U
The student is able to use the following for dramatic effect appropriately in speaking: puns, blank verse, prose, run-on lines, end-stopped lines, rhyming couplets, repetition, metaphors, similes.	P	14-5, 9, 10	U
The student is able to support a speech by locating appropriate statistics, anecdotes, witticisms, quips, humorous verse, and quotations for use in a speech.	P	14-5, 9, 10	U

Language Arts

5 Speaking

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
5.5 Organization			
The student is able to construct a proposition which is (a) appropriate to the knowledge, experiences, and interests of both speakers and audience, (b) debatable, (c) phrased in the affirmative, (d) restricted to contain only one idea, (e) worded clearly, (f) worded in such a way that they do not assume to be true, that which must be proved.	P	14-5, 9, 10	U
The student is able to write speeches from compositions in the following ways: greater repetition, shorter, less complicated sentences and shorter in length	P	14-5, 9, 10	U

Language Arts

5 Speaking

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
5.6 Purpose			
The student understands that the speaker's purpose varies according to the situation.	K	14-5, 9, 10	I
The student is able to recognize when to be animated and when to be restrained according to the purpose he has in speaking.	P	14-5, 9, 10	I
The student is able to adapt his speaking and his speech to the specific audience for which the speech is intended.	P	14-5, 9, 10	I
The student is able to interest or entertain an audience as well as to instruct or persuade them.	P	14-5, 9, 10	U
The student is able to achieve rapport with his listeners in order to make them willing to accept what he tells them; for example, he starts with statements most of the listeners will accept before building up to the more controversial opinions or arguments.	P	14-5, 9, 10	U
The student is able to choose diction appropriate to audience, occasion, and purpose; to use informal language for such informal occasions as talks before small groups; to use formal language for formal functions (debates, symposia, salutatory addresses, and introductions).	P	14-5, 9, 10	U
The student is able to express himself orally, adjusting the tone and rhythm of his voice to the mood of the selection he has written.	P	14-5, 9, 10	P

5 Speaking

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
5.6 Purpose (Cont.)			
The student is able to make a straightforward sincere oral presentation, except when one's purpose is deliberately not to inform, convince, persuade, or inspire (i.e., when one's purpose is to entertain or amuse).	P	14-5, 9, 10	I
The student understands a speaker's responsibility to speak honestly and to shun mere rhetoric.	K	14-5, 9, 10	P

Language Arts

6 Listening

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
6.1 Mechanics of Techniques of Listening			
The student is able to recognize similarities and differences between human and non-human sounds (e.g., boy crying vs. truck stopping).	P	99-8, 14-12	P
The student is able to use appropriate skills in listening to a speech (e.g., anticipating the speaker's next point, identifying the speaker's supporting materials, summarizing information).	P	14-12	I
The student is able to maintain attention in conversations and discussions and in receiving spoken direction (distinguishing main points).	P	14-12	P

Language Arts

6 Listening

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
6.2 Orients Own Experience The student is able to relate his prior experience and knowledge to a speaker's topic.	P	99-8, 14-2	P

Language Arts

6 Listening

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
6.3 Knowledge of Words and Language			
The student knows that listening is a way of increasing vocabulary, especially if an effort is made to identify unknown words by context or investigation.	K	14-12	P

Language Arts

6 Listening

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
6.5 Comprehension			
The student is able to determine whether the major purpose of an oral presentation is to entertain, inform, incite, or inspire or persuade.	P	14-12, 5	I
The student is able to use listening skills to compare and contrast oral information.	P	14-12, 10	I
The student is able to evaluate oral presentations as to the clarity of purpose, the organization of materials, and the relevance of information to the topic.	P	14-12, 10	U
The student is able to gain specific information from an oral presentation to answer questions.	P	14-12, 10	P
The student is able to determine appropriate responses to oral presentations (e.g., follows directions, asks relevant questions and/or makes contributions).	P	14-12, 10	P

Language Arts

6 Listening

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
6.4 Interaction			
The student knows that face-to-face communication involves interaction between speaker and listener, including eye contact, non-verbal expressions, and responses, etc.	K	14-12, 14-10	P
The student is able to participate in discussions without either overly dominating the discussion or withdrawing from it.	P	14-12, 14-10	P
The student is able to listen, think, and evaluate before participation in a formal group discussion.	P	14-6, 14-12	P

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COURSE GOALS IN BIOLOGICAL AND PHYSICAL SCIENCE, GRADES K-12

CRITIQUE DRAFT

A cooperative project of the school districts of Clackamas, Multnomah and Washington Counties, and partially funded through grants from U. S. Department of Health, Education & Welfare, Office of Education, and Oregon Board of Education

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COURSE GOALS
DEVELOPMENT

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Volume 3

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INTRODUCTION

In an accompanying Introductory Booklet, you will find a description of the purpose, history, form, potential uses, and hoped for response to this Course Goal Collection. The aim of that booklet is to provide you a theoretical and historical guide to the use, revision, and extension of material in the collection. This brief additional introduction has the more pedestrian aims of: (A) presenting a brief review of the origins and purposes of the collections, and (B) demonstrating how to read, relate, and use the associated materials that accompany the collection.

A. A Brief Review of the Theoretical and Historical Setting of this Course Goal Collection

Why do we need explicit instructional objectives?

Education is changing its purposes, procedures and curricula under the pressure of social evolution and the resulting mutation of societal needs and expectations. For this change to be orderly it must be planned and controlled. And, for it to be planned and controlled, four things are necessary (see Figure I):

1. Educational objectives must be determined and stated explicitly at every level.
2. The learning experiences that help to bring about the attainment of the objectives must be selected and organized.
3. The extent to which the objectives are being attained and their validity and adequacy must be assessed.
4. Revision of objectives and means of attaining them must result from these assessments.

Aside from facilitating educational improvements, such explicit goals are necessary for communicating to the community, students, teachers, staff, and professional consultants the aims of the school system, so that each may play its role in the fulfillment and revision of these goals.

What is the difference between program goals and course goals and how they are to be used?

There are two differences between program goals and course goals. First, they differ in level of generality, with program goals describing broader outcomes and course goals describing more specific classroom

COMMUNITY (PUBLIC/PRIVATE) - STUDENT - STAFF - PROFESSIONAL CONSULTANTS

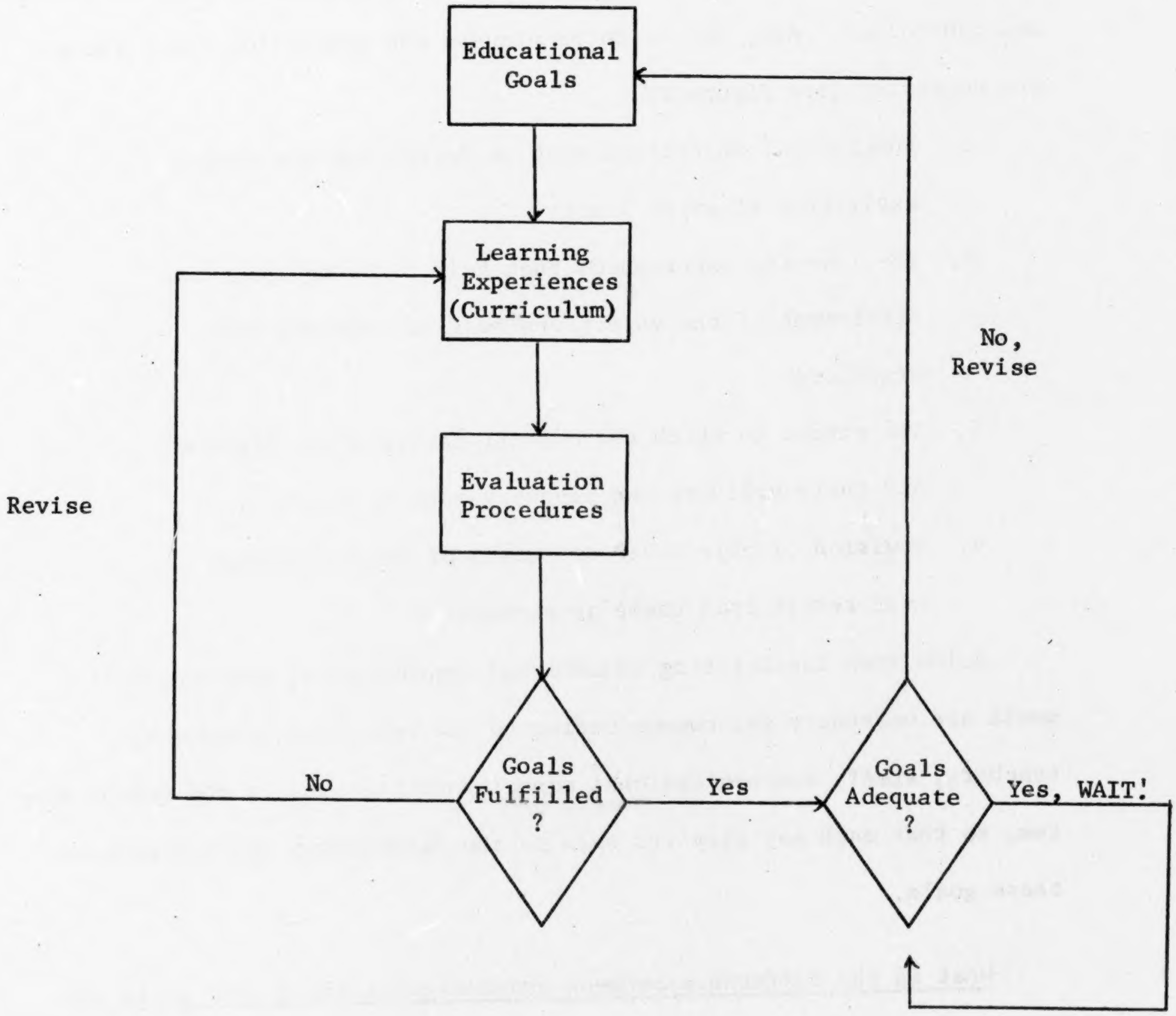
Educational Goals
Learning Experiences (Curriculum)
Evaluation Procedures
Goals Fulfilled ?
Goals Adequate ?
Revise
No
Yes
No, Revise
Yes, WAIT!

Figure I

oriented outcomes whose attainment leads to program goals. Accordingly, the course goals are narrower in scope and temporal range. Analogously a program goal of a football team could be to "make a touchdown;" a course goal to "make a first down."

Second, these two kinds of goals differ in the type of planning for which they are best suited. Program goals serve as guides to planning and organizing programs on the district, area, and school level. Course goals serve as guides to planning courses in schools, departments, and classrooms. Teachers, who ultimately must direct students toward the goals, should be intimately involved at both levels of planning.

Where did the program and course goals come from?

The program goals were prepared by the Portland School District Evaluation Team in consultation with administrators, teachers, and curriculum specialists throughout the metropolitan Portland area. The evaluators used existing goals of the appropriate level of generality and planning orientation as models and guides, and added goals that in their professional judgment were desirable.

The course goals were developed by outstanding teachers assembled from the Tri-County school districts. They, too, used such models and guides as were available. They were guided and supported by Tri-County and State Board of Education curriculum and evaluation personnel.

What is the taxonomy and how is it related to the course goals?

The taxonomy evolved along with the course goals as an index to them, and provides a picture of the major topics covered by them as well as of the organization of those topics. The taxonomy is accordingly a guide to course goals related to a particular topic or sub-topic for course planning. Its subject breakdown also provides modules for consideration in curriculum planning.

Why are there so many course goals?

Course goals are meant to be adapted to meet the educational needs of local situations and individual students. Accordingly, the writers prepared as broad a selection as possible within limits of time and resources so that individual teachers might choose from them (in consultation with the administrative and consultative personnel in their school) a set which will move their particular students furthest along toward the eventual achievement of program goals.

How can the attainment of the course goals be evaluated?

As a next stage of its coordinating and developmental efforts in this project, the Tri-County Steering Committee is committing resources to the creation of evaluation criteria. It is essential, however, that these efforts be supplemented by feedback from those teachers who select and implement these goals and develop instruments to assess their attainment. A bank of evaluative instruments will evolve from the interaction of these two sources.

Is this the final version of the program and course goals?

No. In the development of both the program and the course goals, an effort was made to make them comprehensive, realistic, and immediately applicable to schools as they are currently organized. At the same time, these goals and the taxonomy are to be revised and improved as they are subjected to use and scrutiny by teachers and curriculum personnel. This is to be accomplished through the feedback instrument distributed with these goals.

As time passes, new goals will be called for to meet new knowledge and societal needs. For this reason a mechanism is being created for the continual review and revision of the goals. This revision will be largely dependent on feedback from the field.

It is hoped that the Tri-County districts will find these course goals in the biological and physical sciences and language arts sufficiently useful in the planning, control, and improvement of their procedures and curricula that they will want their teachers to participate in efforts to extend these goals to other areas. In the summer of '72, the Tri-County IED looks forward to attacking the areas of mathematics, social science, music, art, and health and physical education. Once again, outstanding teachers will be sought from throughout the Tri-County area and beyond.

What are some recommended uses of the course goal collection from which their usefulness and improvement will result?

School systems may use the collection first as a yardstick by which to measure the adequacy of goals and objectives already in use. Goals and objectives of local courses of study and textbooks can be contrasted with the goals in this collection to see how complete they are and how well they provide for different interests, abilities, and levels of achievement. They can also be evaluated for conciseness, clarity, and accuracy using these course goals as models.

These kinds of studies can be undertaken by teachers of biological and physical science from all grade levels of the school system (to assure articulation and philosophic unity); by grade levels, divisions, or high school departments (to assure agreement as to goals and ways and means of attaining them) or by individual teachers.

A second and related use of the goals is as a starting point for reviewing what the schools should teach. The distinctions made between process and product, and within these two types of goals (see more extended discussion in the Introductory Booklet) provide provocative clues about universality of need vs. special needs based on interests, abilities, career choices, etc.

Councils for discussing what is important to teach and learn might range all the way from the public-board level to the classroom teacher. The logical sequence of these discussions is to move from broad policy goals to program goals to course goals, with appropriate community-board-staff-student representations at each level. The taxonomic classifications of this collection can serve as a counter-check on higher order goal formulations, and the goals themselves as generators of lower order classroom behavioral objectives and instructional plans.

A third use of the collection is to provide a basis for teaching-learning accountability. If a school system approves all or part of these goals as potentially valid learnings for its students, grade-level, divisional, or departmental representatives may choose from within those approved goals those that are best suited to individual or group aptitudes and interests.

It is possible for teachers to review goals with each student and contract for the attainment of those goals if a completely individualized program is desired. Or, it is possible to stake out a set of goals for target groups (regular classes, special classes, mini-courses, etc.) and to design group experiences that will lead to the attainment of these goals. In any event, the goals themselves are sufficiently explicit that means of teaching them and of evaluating their attainment can readily be devised; and where measurement is appropriate it can be applied individually or to groups to suit the needs of the teachers and of management.

A fourth use of the collection is the rewriting of courses and curricula. The actions implied in the previous statements may lead to new or modified courses of instruction, which in turn require the design or redesign of curricular experiences. The Course Goal Collection was written to be as useful to curriculum designers as possible. The desired learning is stated precisely and free of the conditions and evaluative connotations that characterize the typical behavioral and performance objectives. This was done intentionally to facilitate instructional planning and to force a long-needed clarification of the distinctions between a planning objective and an evaluation objective.

Other uses can be cited, but Districts will discover these. Keep in mind that in all of the above activities Districts are invited and encouraged to use the collection selectively and to add their own wherever this collection does not fill the bill. We hope that where you do add and modify, you will use the feedback forms and contribute to the expansion and improvement of the original collection.

B. How to Read, Relate, and Use the Course Goal Collection and Accompanying Materials

Following this introduction there are three sets of materials (indicated by the three following divider tabs), i.e., Program Goals, Taxonomy, and Course Goals. A feedback instrument is also being distributed with these goals. These materials are briefly described below to facilitate reading, relating and using them.

Program Goals

First in this set of material is a page of Program Goals. The definition of this type of goal, its development and its relation to course goals, is discussed at length in the Introductory Booklet as are the other three types of material described below. Here it is enough to recall that program goals are more general than course goals, and that a set of program goals in a learning program (such as biological or physical science) should constitute a description of the major learning outcomes expected from that program. A few pages further on, when we look at a sample page of course goals, we will see that each course goal has its related program goal(s) indicated.

Taxonomy

Second in this course goal manual is a Taxonomy or outline of the content of the biological and physical sciences. This taxonomy has been developed along with the course goals by a group of thirteen exceptionally competent local biological and physical science teachers from all grade levels. In developing this outline the teachers used all available models with the intent of producing a comprehensive and logically ordered classification of the knowledge in the biological and physical sciences. This will serve as a framework for writing and using these and future course goals.

Course Goals

Third in this course goal manual are the Course Goals themselves. Since our aim here is to learn how to read, relate and use the course goals, let us look at and discuss a typical page of them. (See following page.)

The first thing (1) we see at the center of the top of the page is the heading "Science." This appears at the top of every page of course goals to distinguish them from those in the language arts booklet.

The next thing (2) we note, at the upper left hand side of the page, is a hierarchy of Classificatory Categories (1. Biology,

(1) **Science**

(2) 1 Biology
1.2 Biology of the Organism
1.26 Human Biology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
(3) 1.262 Structure and Function (Cont.)	(4)	(5)	(6)
The student is able to describe the shape and texture of objects by using the sense of touch.	P	1f, 2	P
The student is able to recognize objects by using the sense of touch.	P	1f, 2	P
The student knows the parts of the digestive system and can state the function of each part: (1) mouth, (2) teeth, (3) tongue, (4) food pipe, (5) stomach, and (6) intestine.	K	1f, 2	I
The student knows and can name the function of the major parts of the central nervous system: (1) the brain (cerebellum, cerebrum, and medulla) and (2) the spinal cord.	K	2	I
The student knows the parts and functions of the human circulatory system including the heart, arteries, veins, arterioles, and capillaries.	K	1f, 2	I
The student is able to match the human body systems (skeletal, muscular, digestive, circulatory, and respiratory) to their major functions.	P	1f	I
The student knows the parts and functions of (1) salivary glands, (2) mouth(s), (3) general esophagus, (4) sphincter muscle, (5) stomach, (6) gall bladder, (7) liver, (8) pancreas, (9) large intestine, (10) small intestine, (11) appendix, (12) rectum.	K	1f, 2	U
The student knows the major endocrine structures in the human body and a function of each major structure.	K	2	H
The student is able to infer the function of an organ or system from its structure and vice versa.	P	2	U

1.2 Biology of the Organism, 1.26 Human Biology, and (a little further down the page just below the word "Goal") 1.262 Structure and Function). These headings exactly match those in the taxonomy. In other words, enough of the taxonomy is produced on each page to orient the reader fully to the knowledge categories of the goals he is reading.

The next thing (3) we note on the left side of the page under the heading, "1.262 Structure and Function (Cont.)," are the Course Goals themselves. Some goals in this column have a bracket to their left (e.g., goals 3 to 6 as you read down the page). These brackets indicate that the goals inside the bracket are logically related and may be viewed as a unit.

The next column (4) on the page as we move from left to right is headed Knowledge or Process. A "K" in this column beside a goal indicates that it is a knowledge goal, whereas a "P" indicates that it is a process goal.

In column (5), headed "Program Goal to Which This Goal Contributes," we find one or more numbers (e.g., 2) and/or number letter combinations (e.g., 1f). These numbers and letters beside each course goal indicate its related program goal(s). The actual statement of the related program goals are in the Program Goal section.

In the final column (6) at the rightmost position on the page, headed "Appropriate Initial Instructional Levels P/I/U/H," we find one of the letters P, I, U, or H. These refer to the primary, intermediate, upper, and high school levels of instruction. This indicates the level of instruction at which the goal writer felt it reasonable to begin to seek directly to attain that goal with suitable adjustments in methodology, material, and depth being made by the teacher.

Feedback Instrument

The fourth and final, but most important set of materials to be found in this course goal manual, is the Feedback Instrument. This instrument is in no way intended to limit your input to the process of improvement and extension of the previous three types of material in this booklet. Instead, it represents a minimum amount of feedback we need from you to begin that process and to redesign the framework in which the Course Goal Development Project can begin similar efforts in areas other than biological and physical science and language arts. Additional input is solicited by phone, word of mouth, carrier pigeon, etc., both within and without future county, district, area, school, or department conferences and both before and after you have discussed and tried out these materials with the teachers in your district. The success of this project, which is central to the effort to rationalize decisions concerning the very system by which we help our children become good decision makers, is dependent on this input.

PROGRAM GOALS

Science Program Goals

In solving personal and social problems, the learner will be able to:

1. Employ the following processes in scientific inquiry:
    - a. identify problems
    - b. make and use definitions consistently in solving a problem
    - c. formulate and test hypotheses
    - d. represent relationships among variables through graphs, tables, mathematical sentences, and verbal paragraphs
    - e. identify and control variables
    - f. acquire, organize, classify, analyze, validate, synthesize, interpret, evaluate, and communicate data
    - g. examine alternative solutions to problems
    - h. make accurate predictions from models
    - i. use models to simulate real situations
    - j. develop flow charts, schematics, computer programs, and other prescriptive representations for the solution of problems
    - k. use feedback in controlling real and simulated social, ecological, biological, mechanical, and technological systems
    - l. predict from models when a system might become unstable (as in the case of ecological systems)
    - m. use the tools of technology
2. Demonstrate knowledge of those scientific assumptions, theories, principles, laws, and facts needed in solving personal and social problems.
3. Evaluate present and proposed activity in science and technology in terms of its impact on the quality of life.
    - a. Weigh the relative costs and benefits to society of new products, methods, and technology through scientific inquiry.
    - b. Explore and identify relationships between science, societal problems, and the extent and nature of causality in these relationships.
    - c. Formulate implications of scientific process and knowledge for the individual and society.
4. Examine scientific assumptions in the perspective of historical and current information.
5. Value scientific knowledge and methodology as one means of solving personal consumer and social problems.

TAXONOMY

SCIENCE TAXONOMY

1. Biology

1.1 Biology of the cell

1.11 Structure and function of the cell

- 1.111 - Cell structure
- 1.112 - Cell functions
- 1.113 - Relation between structure and function

1.12 Transport of cellular material

- 1.121 - Into and out of the cell
- 1.122 - Forces which produce transportation
- 1.123 - Regulation of forces

1.13 Cell metabolism

- 1.131 - Building up chemicals
- 1.132 - Tearing down chemicals
- 1.133 - Components of

1.14 Photosynthesis

- 1.141 - Using light
- 1.142 - Making food
- 1.143 - Importance of

1.15 Cell Responses

- 1.151 - Stimuli that cause
- 1.152 - Control of stimuli
- 1.153 - Types of

1.16 Concept of the Gene

- 1.161 - Message center
- 1.162 - Replication
- 1.163 - Pedigree
- 1.164 - History

1.2 Biology of the organism.

1.21 Diversity of life

- 1.211 - Differences of food getting
- 1.212 - Supporting of structures
- 1.213 - Gas exchange (breathing, respiration, photosynthesis)
- 1.214 - Mobility
- 1.215 - Reproduction
- 1.216 - Sensors
- 1.217 - Habitat

1.22 Classification

- 1.221 - Protists (micro organisms)
- 1.222 - Animals
- 1.223 - Plants

1.23 Regulation in organisms

- 1.231 - Maintenance of chemical balance
- 1.232 - Maintenance of physical balance

1.24 Coordination and behavior

- 1.241 - Inborn behaviors
- 1.242 - Learned behaviors
- 1.243 - Feedback systems

1.25 Reproduction and development

- 1.251 - Gamete formation (meiosis) (making sperms and eggs)
- 1.252 - Fertilization
- 1.253 - Embryonic development
- 1.254 - Development as an individual
- 1.255 - Asexual reproduction

1.26 Human biology

- 1.261 - Health and hygiene
- 1.262 - Structure and function
- 1.263 - Human genetics
- 1.264 - Human behavior

1.27 Structure and function of organisms

- 1.271 - Structure
- 1.272 - Function

1.273 - Relationship between structure and function

- 1.3 Natural Systems
  - 1.31 Natural environment
    - 1.311 - Biotic (living things)
    - 1.312 - Abiotic (non-living things, physical settings)
    - 1.313 - Interactions
  - 1.32 Cycles in nature
    - 1.321 - Biotic (living)
    - 1.322 - Abiotic (non-living)
  - 1.33 Population genetics
  - 1.34 Evolution

- 1.4 Ecosystems
  - 1.41 Brosphere
  - 1.42 Biome
  - 1.43 Community
  - 1.44 Management
  - 1.45 Matter
  - 1.46 Energy

- 1.5 Molecular biology
  - 1.51 Energy
  - 1.52 Information
  - 1.53 Interaction

2. Physical Science

  2.1 Chemistry

    2.11 Matter (Chemical materials) (See also 2.29)

      2.111 Characteristics (See also 2.291)

        2.1111 Mass (See also 2.2911)
        2.1112 Volume (See also 2.2912)
        2.1113 Density (See also 2.2913)

      2.112 Structure (See also 2.292)

        2.1121 Atoms (See also 2.2921)
        2.1122 Molecules (See also 2.2922)
        2.1123 Crystals (See also 2.2923)

      2.113 Elements (See also 2.293)

      2.114 Compounds (See also 2.294)

        2.1141 Characteristics (See also 2.2941)
        2.1142 Acids (See also 2.2942)
        2.1143 Bases (See also 2.2943)
        2.1144 Salts (See also 2.2944)
        2.1145 Other compounds (See also 2.2945)

      2.115 Mixtures - Solutions (See also 2.2950)

      2.116 Phases (See also 2.296)

        2.1161 Gases (See also 2.2961)
        2.1162 Liquids (See also 2.2962)
        2.1163 Solids (See also 2.2963)

      2.117 Physical Properties (See also 2.297)

    2.12 Energy changes

      2.121 Characteristics (See also 2.231)

        2.1211 Potential energy (See also 2.2311)
        2.1212 Kinetic energy (See also 2.2312)

      2.122 Equilibrium (See also 2.232)

      2.123 Conservation (See also 2.233)

      2.124 Chemical

      2.125 Physical

- 2.126 Nuclear

2.13 Electrochemistry

- 2.131 Characteristics
- 2.132 Oxidation reduction

2.14 Organic chemistry

- 2.141 Characteristics

2.15 Biochemistry - Chemistry of life processes

- 2.151 Characteristics
- 2.152 Life processes

2.16 Nuclear chemistry

- 2.161 Characteristics

2.2 Physics

2.21 Kinematics - Motion

- 2.211 Characteristics
- 2.212 Speed - Non-directional motion
- 2.213 Velocity - Directional motion
- 2.214 Acceleration - Rate of change of velocity

2.22 Dynamics

- 2.221 Characteristics
- 2.222 Forces
- 2.223 Mechanical advantage
- 2.224 Mechanics of fluids
- 2.225 Gravity
- 2.226 Friction

2.23 Energy - Work

  2.231 Characteristics

    2.2311 Potential - Stored energy (See also 2.1211)
    2.2312 Kinetic - Energy of motion (See also 2.1212)

  2.232 Equilibrium

  2.233 Conservation

2.24 Heat

  2.241 Characteristics

  2.242 Temperature

  2.243 Amount - Calorie, Joule

  2.244 Change of state

  2.245 Transfer

2.25 Light

  2.251 Characteristics

  2.252 Intensity

  2.253 Speed

  2.254 Reflection, refraction, absorption

  2.255 Wave phenomena - spectra - color

2.26 Sound

  2.261 Characteristics

  2.262 Amplitude - loudness

  2.263 Wave phenomena - frequency - pitch

  2.264 Speed

  2.265 Reflection, absorption, refraction

2.27 Electricity

- 2.271 Characteristics
- 2.272 Static
- 2.273 Current
- 2.274 Magnetism
- 2.275 Electrical circuitry

2.28 Wave phenomena

- 2.281 Characteristics
- 2.282 Water

2.29 Matter

- 2.291 Characteristics (See also 2.111)
    - 2.2911 Mass (See also 2.1111)
    - 2.2912 Volume (See also 2.1112)
    - 2.2913 Density (See also 2.1113)
- 2.292 Structure (See also 2.112)
    - 2.2921 Atoms (See also 2.1121)
    - 2.2922 Molecules (See also 2.1122)
- 2.293 Elements (See also 2.1130)
- 2.294 Compounds (See also 2.114)
    - 2.2941 Characteristics (See also 2.1141)
    - 2.2942 Acids (See also 2.1142)
    - 2.2943 Bases (See also 2.1143)
    - 2.2944 Salts (See also 2.1144)
    - 2.2945 Other compounds (See also 2.1145)
- 2.295 Mixtures - solutions (See also 2.115)
- 2.296 Phases (See also 2.116)
    - 2.2961 Gases (See also 2.1161)
    - 2.2962 Liquids (See also 2.1162)
    - 2.2963 Solids (See also 2.1163)
- 2.297 Physical properties (See also 2.117)

2.3 Earth and space science

2.31 Solar system

2.311 Theories of origin

2.312 Dating methods

2.313 Sun

2.314 Planets

2.3141 Earth
2.3142 Other

2.315 Moons/satellites

2.3151 Moons
2.3152 Man-made satellites

2.316 Comets

2.317 Meteors/asteroids

2.3171 Meteors
2.3172 Asteroids

2.318 Dynamics (force, motion and time)

2.319 Space travel

2.32 Stellar System

2.321 Theories of origin
2.322 Dating
2.323 Galaxies
2.324 Constellations
2.325 Nebulae
2.326 Stars
2.327 Astronomical measurement and instruments
2.328 Astronomers (famous men)
2.329 Dynamics (forces and motion and time)

2.33 Meteorology

- 2.331 Structure of atmosphere
- 2.332 Heating and cooling
- 2.333 Moisture
    - 2.3331 Humidity
    - 2.3332 Water cycle
    - 2.3333 Clouds and fog
    - 2.3334 Dew and frost
    - 2.3335 Precipitation
- 2.334 Storms
    - 2.3341 Air masses and fronts
    - 2.3342 Violent storms
- 2.335 Winds
- 2.336 Weather forecasting
- 2.337 Climate

2.34 Physical Geology

- 2.341 Maps
- 2.342 Size and shape of earth
- 2.343 Structure of earth
    - 2.3431 Internal layers
    - 2.3432 Land forms
    - 2.3433 Water
- 2.344 Earthquakes and volcanoes
    - 2.3441 Earthquakes
    - 2.3442 Volcanoes
- 2.345 Diastrophism
- 2.346 Erosion and deposition
    - 2.3461 Water
    - 2.3462 Wind
    - 2.3463 Glaciers
    - 2.3464 Deposition

- 2.347 Rocks and minerals
  - 2.3471 Rocks
  - 2.3472 Minerals
- 2.348 Soil
  - 2.3481 Formation
  - 2.3482 Types
- 2.349 Conservation
  - 2.3491 Soil
  - 2.3492 Water
  - 2.3493 Air

2.35 Historical Geology

- 2.351 Theories of origin
- 2.352 Dating methods
- 2.353 Time periods
- 2.354 Paleontology
  - 2.3541 Fossils
  - 2.3542 Extinct animals
  - 2.3543 Theory of evolution

2.36 Geochemistry

- 2.361 Rocks and minerals

2.37 Oceanography

- 2.371 Underwater landscape
- 2.372 Currents

2.373 Waves

- 2.3731 Causes and characteristics
- 2.3732 Effects on shorelines

2.374 Tides

2.375 Minerals

2.376 Life

2.377 Effect on climate

2.378 Instruments and equipment

7. Fundamental Scientific Processes (See 1.)

(Goals have been written and
located according to this
part of the taxonomy for
only the bracketed sections)

- 7.1 Acquiring knowledge
  - 7.11 Observing
    - 7.111 Listening
    - 7.112 Feeling (tactile)
    - 7.113 Smelling
    - 7.114 Tasting
    - 7.115 Seeing
    - 7.116 Five senses
- 7.2 Organizing knowledge
  - 7.21 Recording
  - 7.22 Ordering
  - 7.23 Classifying
  - 7.24 Quantifying (including measurement)
    - 7.241 Physical properties
      - 7.2411 Measurable properties
      - 7.2412 Scale - property relationship
    - 7.242 Metric system
      - 7.2421 Length
      - 7.2422 Mass (weight)
      - 7.2423 Capacity
      - 7.2424 Temperature scale

- 7.243 English system
  - 7.2431 Length
  - 7.2432 Mass (weight)
  - 7.2433 Capacity
  - 7.2434 Temperature scale
- 7.244 Time
- 7.245 Space
- 7.246 Heat measurement
- 7.247 Measurement devices
  - 7.2471 Length
  - 7.2472 Mass
  - 7.2473 Capacity
  - 7.2474 Temperature
  - 7.2475 Time
  - 7.2476 Space
  - 7.2477 Light
  - 7.2478 Sound
  - 7.2479 Force

7.25 Manipulating, transforming

7.26 Developing, supporting, documenting, defining

7.27 Summarizing

7.3 Interpreting knowledge

- 7.31 Translating
- 7.32 Inferring
- 7.33 Comparing and contrasting
- 7.34 Generalizing
- 7.35 Relating to criteria
- 7.36 Relating to values (evaluation)

7.4 Acting upon knowledge
  7.41 Reacting
  7.42 Theorizing - hypothesis
  7.43 Predicting
  7.44 Experimenting
  7.45 Solving problems
  7.46 Making decisions
  7.47 Restructuring values
  7.48 Restructuring behavior

7.5 Communicating knowledge
  7.51 Description
  7.52 Symbolic representation
    7.521 Graphing
    7.522 Mapping
    7.523 Using tables
    7.524 Using symbols
    7.525 Modeling
    7.526 Other
  7.53 Using art media
    7.531 Painting
    7.532 Drawing
    7.533 Sculpting
    7.534 Constructing
    7.535 Other

7.54 Dramatic acting

7.55 Singing, playing instruments

7.56 Performing sports

7.57 Dancing

7.58 Other forms of non-verbal communication

Course Goals in Biological and Physical Science, Grades K-12

Science

1 Biology
1.1 Biology of the Cell
1.11 Structure and Function of the Cell

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.111 Cell Structure			
The student knows that things can be magnified by a microscope.	K	2	P
The student is able to observe objects using a microscope.	P	2, 1m	P
The student is able to recognize when things they are viewing have been magnified by a microscope.	P	2	P
The student is able to describe the objects he sees in a microscope.	P	2, 1m	P
The student is able to produce a focused image of a cell structure.	P	1f	I
The student knows when the microscope is the appropriate sense extender.	K	1m, 1g	U
The student is able to operate and maintain a microscope.	P	1m, 1f	U
The student is able to calculate the magnifying power of a microscope.	P	1m, 1d, 1f	U
The student is able to calculate the actual size of an object seen in a microscope.	P	1f, 1d, 1m	H
The student knows the parts of a generalized cell (e.g., cell wall, cell membrane, nucleus, cytoplasm).	K	1f	I
The student is able to recognize from microscopic examination the nucleolus, vacuoles, and plastids as parts of the cell.	P	1f	U
The student knows that the cell is a unit of structure and function.	K	1f	I
The student is able to prepare microscopic slides from which he will be able to identify the structural parts of an animal or plant cell.	P	1f	I

Science

1 Biology
1.1 Biology of the Cell
1.11 Structure and Function of the Cell

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.111 Cell Structure (Cont.)			
The student knows the steps necessary to fix and stain cellular material on a slide.	K	1f	U
The student is able to fix and stain cellular material on a microscopic slide.	P	1f	U
The student is able to make wet mount slides of thin sections of living material.	P	1f	I
The student knows that living material in the cell is composed of elements and compounds in the earth's atmosphere and crust.	K	2	I
The student knows the characteristics which differentiate living cells from non-living matter (motion-response to stimuli).	K	1f	I
The student knows that plant and animal cells have basically similar structures.	K	1f	I
The student is able to discriminate between objects which are cells and objects which are not cells (e.g., air bubbles, dirt, crystals) when working from pictures, diagrams, or prepared slides.	P	1f	I

Science

1 Biology
1.1 Biology of the Cell
1.11 Structure and Function of the Cell

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.112 Cell Functions			
The student knows a function of the nucleus of a cell plus a function of one type of vacuole.	K	1f	H
The student is able to draw cell organelles (e.g., the nucleus, vacuoles and plastids) and investigate each as to its role in information or energy systems within the cell.	P	1f	H
The student knows that cells are specialized for different functions.	K	1f	I
The student knows the functions of cell wall, cell membrane, cytoplasm, and nucleus of a cell.	K	2	I
The student knows that cells reproduce themselves.	K	2	I
A student knows that a single celled organism can perform all the basic life functions.	K	1f	I
The student knows that all parts of an organism including cells work together for the total functioning of the organism.	K	2	I
The student knows that cells are organized into tissues; tissues into organs; organs into systems; systems into organisms.	K	1d	I

Science

1 Biology
1.1 Biology of the Cell
1.11 Structure and Function of the Cell

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.113 Relation between Structure and Function			
The student knows that a many-celled organism is a community of interdependent cells.	K	1f	I
The student knows the parts and functions of plant and animal cells.	K	2	U
The student knows cells respond to changes in the environment by changing shape.	K	1f	H
The student knows that plant and animal cells change matter and that they interchange matter and energy with the environment.	K	1f	I
The student knows that cells have the functions of support, movement, chemical exchange, communication, protection, locomotion, and reproduction.	K	2, 1f	H

Science

1 Biology
1.1 Biology of the Cell
1.12 Transport of Cellular Material

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.121 Into and Out of the Cell			
The student knows the difference between total permeability, impermeability, and selective permeability (permeability being the ability to pass through).	K	1f	U

Science

1 Biology
1.1 Biology of the Cell
1.12 Transport of Cellular Material

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.122 Forces Which Produce Transportation			
The student knows the difference between diffusion and osmosis.	K	1b	U
The student knows the ways in which substances move through cell membranes: (1) passive diffusion, (2) active transport, (3) ingestion, and (4) excretion.	K	1f	H
The student is able to interpret data regarding temperature, particle size, distance, random motion, and agitation as factors which affect the rate at which solids go into solvents for transportation in living systems.	P	2	H

Science

1 Biology
1.1 Biology of the Cell
1.12 Transport of Cellular Material

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.123 Regulation of Forces Based on experimental evidence, the student is able to show that the rate of osmosis is affected by change of temperature, concentration of solute, membrane permeability and energy expended by the cell.	P	1f, 1d, 1h	H

Science

1 Biology
1.1 Biology of the Cell
1.13 Cell Metabolism

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.131 Building Up Chemicals			
The student is able to interpret experiments which show the interaction of photosynthesis and respiration.	P	2	H
The student is able to diagram a chemical equation showing reciprocal reactions of photosynthesis and respiration.	P	1f, 2	H
The student knows that the energy that drives metabolism comes directly from the ATP-ADP molecular cycle.	K	2	H
The student knows that DNA is the beginning of a messenger chain which controls cell metabolism.	K	1f, 2	H

Science

1 Biology
1.1 Biology of the Cell
1.13 Cell Metabolism

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.132 Tearing Down Chemicals			
The student is able to measure the amount of carbon dioxide produced by a living system.	P	le, lf	I

Science

1 Biology
1.1 Biology of the Cell
1.13 Cell Metabolism

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.133 Components of			
The student knows the materials which cells require to maintain life.	K	1f, 2	I
The student knows that respiration is dependent upon mechanisms present only in living cells.	K	1f	U
The student knows that enzymes, amino acids, and ribosonal (RNA) function as a system to synthesize cell protein in the endoplasmic reticulum.	K	2	H
The student is able to demonstrate, using models, how the structure of molecules influences their functions as listed: carbohydrates and energy; protein-enzymes and cell building; nucleic acids and hereditary material; Atp-Adp and energy.	P	1f, 2	H

Science

1 Biology
1.1 Biology of the Cell
1.14 Photosynthesis

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.141 Using Light			
The student knows that plants differ in the amount of light they need for good growth.	K	1f, 2	P
The student knows that during photosynthesis green plants manufacture simple sugars using the energy of light.	K	1f	I
The student knows that during photosynthesis (manufacture of carbohydrates) green plants produce oxygen.	K	1f	I
The student is able to interpret experimental data which shows the relationship of light intensity to the rate of photosynthesis.	P	1e	H
The student knows a definition of photosynthesis that includes the light and dark reactions.	K	1c, 1e, 1h, 1m	H
The student knows features of green plants which support photosynthesis.	K	2	H
The student is able to recognize experimental evidence which supports the hypothesis that photosynthesis does not occur if a reaction (variable) is removed from the process.	P	1c, 1e, 1h, 1m	I

Science

1 Biology
1.1 Biology of the Cell
1.14 Photosynthesis

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.142 Making Food			
The student knows that a plant grows by adding to itself new material which it makes from air, water, and substances from the soil.	K	2	P
The student knows that plants are green because of chlorophyll, a green substance in their leaves.	K	1f	P
The student knows that sugar and oxygen are the products of the photosynthesis process.	K	2	I
The student knows the reactions that constitute the process of photosynthesis.	K	1f	U

Science

1 Biology
1.1 Biology of the Cell
1.14 Photosynthesis

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.143 Importance of			
The student is able to demonstrate that green plants have the ability to produce food that animals use.	P	1d	P
The student knows that living things obtain from the environment the matter and energy they need for growth and activity.	K	1f	I
The student knows that higher forms of life are dependent on oxygen.	K	2	I
The student knows that animals are ultimately dependent on plants for food.	K	2	I
The student knows that the capture of radiant energy by green plants is basic to the growth and maintenance of all living things.	K	1f	I
The student knows that matter and energy cycle in the environment through the photosynthesis-respiration processes.	K	1f	h

Science

1 Biology
1.1 Biology of the Cell
1.15 Cell Responses

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.151 Stimuli that Cause			
The student knows that electrochemical and physical phenomena common in the universe are also responsible for stimulating cell reactions.	K	1d, 1f, 2	H
The student is able to conduct experiments and collect data which shows the nature of cell responses.	P	1d, 1e, 1f, 1m	H
The student knows that the major energy source for cell response is the adenosine tri phosphate (ATP) molecule.	K	1f, 1b	H

Science

1 Biology
1.1 Biology of the Cell
1.15 Cell Responses

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.152 Control of Stimuli			
The student knows that it is possible to control cell responses by controlling the appropriate electrochemical and physical stimuli.	K	1d, 1f, 2	H
The student is able to control stimuli in such a way as to effect cell responses in a predicted fashion.	P	1d, 1e, 1f, 1m	H

Science

1 Biology
1.1 Biology of the Cell
1.15 Cell Responses

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.153 Types of			
The student knows that cells respond to stimuli in a way similar to that of whole organisms.	K	1d, 1f, 2	H
The student is able to conduct experiments and collect data which shows the nature of cell responses.	P	1d, 1e, 1f, 1m	H

Science

1 Biology
1.1 Biology of the Cell
1.16 Concept of the Gene

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.161 Message Center			
The student knows the DNA bases and their companion bases.	P	2	H
The student is able to order DNA molecules and their companion bases in a particular sequence, then disrupt the sequence to demonstrate mutation.	P	2	H
The student knows that the sequence of paired DNA bases provides the "bits of information" for controlling cell metabolism.	K	1f	H
The student is able to order DNA molecules and their companion bases in a way that would show how they might produce a particular amino acid.	P	2	H
The student is able to construct a model of the DNA, M-RNA, T-RNA, enzyme chain and recognize it as the basic information system for cell metabolism.	P	2	H

1 Biology
1.1 Biology of the Cell
1.16 Concept of the Gene

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.162 Replication			
The student knows that individuals are unique.	K	1f, 2	P
The student knows that the pattern of the organism is passed along to new cells by duplication of chromosomes and their DNA content.	K	1f	H
The student knows the ways in which the differences in the mechanisms of mitosis and meiosis affect the offspring that result from asexual or sexual reproduction.	K	2	H
The student knows that sexual reproduction creates variety and preserves stability in the gene pool.	K	2	H
The student is able to use models to contrast the role of mitosis and meiosis as the basis for maintenance of chromosome number in the cell vs. chromosome number in individuals.	P	2	H

Science

1 Biology
1.1 Biology of the Cell
1.16 Concept of the Gene

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.163 Pedigree			
The student knows that offspring look similar to their parents.	K	1f, 2	P
The student is able to match baby animals with the appropriate parent.	P	1f, 2	P
The student knows that a living thing is a product of its heredity and environment.	K	1f	I
The student knows the phenotype of the following genotypes which are the result of nondisjunctions, xo, xxy, xyy, and can relate this to the development of the chromosome theory.	K	2	H
The student is able to design experiments involving test crosses which will reveal genotypes of parental organisms.	P	1a, 1m	H
The student is able to calculate F_1 and F_2 genotypes and phenotypes from parental genotypes for monohybrid, dihybrid, and trihybrid crosses.	P	2	H

1 Biology
1.1 Biology of the Cell
1.16 Concept of the Gene

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.164 History The student knows the contributions to the gene concept of the following: Aristotle, Leeuwenhoek, Darwin, Mendel, DeVries, Lysenko, Lamarck, Watson, Crick, Bridges, Sutton, Morgan, Beadle, H. J. Muller.	K	2, 4	H

Science

1 Biology
1.2 Biology of the Organism
1.21 Diversity of Life

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.211 Differences of Food Getting			
The student knows that different birds have developed different beaks, in relation to their feeding habits.	K	1f	P
The student knows the mouth parts, wings, and legs of several common insects.	K	1f	P
The student knows that different kinds of animals have different kinds of mouth structures.	K	1f	P
The student is able to predict from the shape and structure the kinds of animal mouths best suited for such things as sucking, tearing or meat chewing, cracking seeds, or catching insects.	P	1c, 1f	P
The student is able to predict from the structure of animal teeth the kind of food they eat.	P	1c, 1f	P
The student knows that plant roots will grow towards water.	K	1f	P
The student knows that plants need air, water, and sun to live and that air is taken in through the leaves, water through roots, and that the sun helps it to make food.	K	2	P
The student knows that mouth adaptations of various animals depend upon the kinds of food to be gathered by an animal.	K	1f, 2	I
The student knows that diversity in life is illustrated by differences in food-getting structures.	K	2	H

1 Biology
1.2 Biology of the Organism
1.21 Diversity of Life

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.212 Supporting of Structures			
The student is able to tell an animal's size from the size of its skeletal system.	P	1f, 2	P
The student knows the major bone areas of the human skeleton which form the body framework and their function (e.g., skull, ribcage, backbone, pelvis, femur, tibia, fibula, radius, ulna, phalanges).	K	1f, 2	I
The student knows that diversity in life is illustrated by differences in supporting structures.	K	2	H
The student is able to predict from known structures and functions of the human skeletal framework what structures of other organisms carry out similar functions.	P	1f, 2	U
The student knows the four kinds of joints and their function: (1) hinge joints, (2) ball-and-socket joints, (3) immovable joints, and (4) pivot joints.	K	1f, 2	I
The student knows the major structural parts of stems with the functions served by these parts.	K	2	U

1 Biology
1.2 Biology of the Organism
1.21 Diversity of Life

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.213 Gas Exchange (Breathing, Respiration, Photosynthesis)			
The student knows that different animals breath in different ways (e.g., land animals have lungs and water animals have gills).	K	2	P
The student knows that some water animals obtain oxygen from the air while others use oxygen that is dissolved in water.	K	1f	I
The student knows how breathing structures (lungs or gills) are best suited for a particular habitat.	K	1f, 2	I
The student knows that diversity in life is illustrated by differences in gas exchange mechanisms.	K	2	H

1 Biology
1.2 Biology of the Organism
1.21 Diversity of Life

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.214 Mobility			
The student knows that animal structures (claws, webbed feet, hoofs, toes, wings, fins) are best suited for the different tasks the animals perform.	K	2	P
The student knows that some insects, moths and butterflies, have four wings.	K	1f	P
The student knows that insects have several means of mobility including such things as crawling, jumping, or flying.	K	1f	P
The student knows names and characteristics of some living things that are adapted for flight.	K	2	P
The student knows that insects have six legs.	K	2	P
The student knows that different kinds of fish have different shapes and sizes of fins.	K	1f	P
The student is able to predict the kinds of locomotion possible in animals with various shapes and various kinds of appendages.	P	1f	P
The student knows a variety of structural parts used for locomotion including claws, webbed feet for perching and balancing; hoofs and toes for walking, running, and balancing; wings and fins for flying and swimming; air bladders for floating.	K	1f, 2	I
The student knows that diversity in life is illustrated by differences in locomotion.	K	2	H

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1 Biology
1.2 Biology of the Organism
1.21 Diversity of Life

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.215 Reproduction			
The student knows that plants grow fruits and nuts in various forms.	K	2	P
The student knows that plants reproduce in a variety of ways from seeds, roots, cutting, and bulbs.	K	2	P
The student knows that diversity in life is illustrated by reproductive structures.	K	2	H

Science

1 Biology
1.2 Biology of the Organism
1.21 Diversity of Life

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.216 Sensors			
The student knows that some animals have eyes similar to humans and other animals have different kinds of eyes.	K	1f	P
The student knows that different animals have different kinds of ears, and some have no visible ears.	K	1f	P
The student is able to perform simple tests related to vision, taste, and smell.	P	1f	P
The student knows that the characteristics, functions, and development of the eyes and ears of various animals depend on habitat (where it is) and needs to which the animal has adapted.	K	1f	I
The student is able to design tests related to vision, taste, and touch which show that these senses can be refined by sense extenders.	P	2	I
The student knows that diversity in life is illustrated by differences in sensory structure.	K	1e, 2	H

Science

1 Biology
1.2 Biology of the Organism
1.21 Diversity of Life

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.217 Habitat			
The student knows that different kinds of animals are suitable for different climatic locations.	K	2	P
The student knows that different kinds of plants are suitable for different climatic locations.	K	1f, 2	P
The student knows how fish are suited to their habitat.	K	2	P
The student is able to name a living thing and tell what it needs to live.	P	2	P
The student is able to compare the activities and needs of a living thing with his own activities and needs.	P	2	P
The student knows the kinds of life, if any, present at each depth in the ocean.	K	2	I
The student knows the habitat, life activity, structure, and common needs of fish.	K	1f	U
The student knows internal and external suitability of morphological adaptions of the crayfish to the aquatic environment.	K	1f	U
The student is able to formulate hypotheses that explain the distribution and characteristics of the subspecies of an organism.	P	1c, 2	H

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1 Biology
1.2 Biology of the Organism

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.22 Classification			
The student is able to divide a set of objects into two groups based on externally selected criteria.	P	1b, 1d, 2	P
The student knows that living and non-living matter can be grouped into various classification schemes.	K	2	P
The student is able to construct a system of classification showing the observable similarities and differences of objects or organisms.	P	1f	P
The student is able to classify living and non-living matter according to a taxonomic system.	P	1b, 1d, 2	U
The student knows that animals can be classified according to their kingdom, phylum, and class.	K	1b, 1f	I
The student knows the structural characteristics used to classify living organisms into three kingdoms to be defined as: animals, plantae, pretista.	K	1b, 2	U
The student knows several structural characteristics which are common to specific groups of organisms.	K	2	H
The student is able to use a taxonomic key to identify and name living things.	P	1f	H
The student knows that the basis of our taxonomic schemes is generally structural rather than, for example, size or behavior.	K	1f, 2	U
The student is able to divide a set of objects into two groups based on student criteria.	P	1b, 1d, 2	U

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1 Biology
1.2 Biology of the Organism
1.22 Classification

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.221 Protists (Micro Organisms)			
The student knows that protists (micro organisms) as observable objects can be classified by observable characteristics.	K	2	U
The student is able to classify protists (micro organisms) according to similarities and differences in their observable characteristics.	P	1b, 1f, 1d	U

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1 Biology
1.2 Biology of the Organism
1.22 Classification

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.222 Animals			
The student knows that animals are objects and can be classified by physical characteristics.	K	2	P
The student is able to classify animals according to habitats, skin covering, the way the animal moves, and/or the number of legs.	P	1f	P
The student is able to group animals according to similarities and differences.	P	1b, 1f, 1d	P
The student knows that individuals with similar characteristics can be grouped together.	K	1f, 2	P
The student is able to identify the following properties of animals: (1) how they eat; (2) how they grow; (3) how the change; (4) how they move by themselves; and (5) how they have babies.	P	1f, 2	P
The student is able to classify familiar animals according to whether they eat meat, plants, or both.	P	1f	P
The student is able to point out variations in animals of the same species.	P	1f	P
The student knows the characteristics of mammals.	K	1f, 2	I
The student knows the characteristics of the amphibians.	K	1f, 2	I
The student knows the characteristics of birds.	K	1f, 2	I
The student knows the characteristics of fish.	K	1f, 2	I

Science

1 Biology
1.2 Biology of the Organism
1.22 Classification

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.222 Animals (Cont.)			
The student knows the characteristics of insects.	K	1f, 2	I
The student, according to his own criteria and method, is able to classify various animals, plants, and objects.	P	1b, 2	I
The student knows the characteristics of common animals belonging to the following groups: worms, insects, shellfish, fish, amphibians, reptiles, birds, and mammals.	K	2	I
The student is able to order sequentially the following animal societies based on the degree of organization of members within the society: (1) ants, (2) bees, (3) wasps, (4) wolves, (5) elephants, (6) deer, and (7) termites.	P	2	U

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1 Biology
1.2 Biology of the Organism
1.22 Classification

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.223 Plants			
The student is able to group plants according to similarities and differences.	P	1b, 1d, 1f	P
The student is able to compare plants and plant parts showing similarities and differences.	P	1f, 2	I
The student is able to point out that seeds, like plants or other objects, can be placed within various systems of classification.	P	1f, 2	I
The student knows various plants as belonging to major groups (1) single cell and simple colonial plants, (2) mosses, (3) ferns, or (4) seed plants (including plants with cones and plants with flowers).	K	1f, 2	I
The student knows the two major classifications of trees to be defined as deciduous and coniferous, each of which varies according to leaf, bark, seed, etc.	K	1f, 2	P
The student is able to identify plants by their similarities and differences.	P	1f, 2	I

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1 Biology
1.2 Biology of the Organism
1.23 Regulation in Organisms

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.231 Maintenance of Chemical Balance			
The student knows how regulation and homeostasis occur and can explain how two given systems function to maintain a stable internal equilibrium.	K	1d, 1i 1k, 1L, 2	U
The student knows patterns of behavior and the interaction of the endocrine and nervous systems which control these behaviors.	K	1i, 1k, 1L, 2	U
The student is able to analyze mechanical, social and living systems to compare the types of feedback which control each system.	P	1f, 1k, 1i	H

1 Biology
1.2 Biology of the Organism
1.23 Regulation of the Organisms

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.232 Maintenance of Physical Balance			
The student knows the fundamental processes that occur during the leaf color changes of autumn.	K	2, 1f	U
The student knows the fundamental processes that occur during leaf fall.	K	2, 1f	H
The student knows physical factors in the environment which interact with regulatory systems in an organism.	K	1i, 1k, 1L, 2	H
The student knows that feedback systems are essential for regulation and homeostasis.	K	1i, 1k, 1L, 2	H

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1 Biology
1.2 Biology of the Organism
1.24 Coordination and Behavior

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructi Level P/I/U/
1.241 Inborn Behaviors			
The student knows that various animals change behavior to adapt to changes in the seasons.	K	1f, 2	P
The student knows that there are observable changes in a plant in response to touch, heat, light, and air movements.	K	1e	P
The student knows that leaf change and seed dispersal occur in plant processes in the fall.	K	2	P
The student knows that living things respond to change in the environment by changing patterns.	K	2	I
The student is able to test the effect of variables (temperature, air supply, light, water, food) on behavior or growth of an organism.	P	1f	I
The student knows definitions and examples of the following positive and negative reactions to behavioral stimuli: (1) irritability, (2) tropisms, (3) taxis.	K	1f	H
The student knows the following types of behavior in organisms and can tell whether the behavior is learned or unlearned: (1) food getting, (2) escape and/or protective, (3) reproductive, (4) social, (5) territorial and home range, homing, and migration (location).	K	1f	H
The student is able to distinguish between a stimulus and a response in a given experimental situation.	P	1f, 2	I

1 Biology
1.2 Biology of the Organism
1.24 Coordination and Behavior

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.242 Learned Behaviors			
The student knows a method to improve a learned behavior (skill) which would help him make the most progress in a given period of time (e.g., drill, positive reinforcement, punishment).	K	1f	I
The student knows those environmental factors which promote and negate learning (e.g., noise, odors, temperature).	K	1f, 2	I
The student is able to test a hypothesis related to learned behavior.	P	2	I

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1 Biology
1.2 Biology of the Organism
1.24 Coordination and Behavior

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructiona Level P/I/U/H
1.243 Feedback Systems The student knows that organisms adapt their behavior to their environment as a function of messages received through feedback systems.	K	1f, 2	I

1 Biology
1.2 Biology of the Organism
1.25 Reproduction and Development

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.251 Gamete Formation (Meiosis) (Making Sperms and Eggs)			
The student knows that human individuals have two parents.	K	1f	P
The student knows the following parts of a flower (1) stamen, (2) anther, (3) stigma, (4) pollen, (5) style, (6) pistil, (7) ovary, (8) petal, (9) sepal and (10) filaments.	K	2	I
The student knows that green plants have distinct reproductive systems and life cycle patterns.	K	1f, 1d	U
The student knows the names of the parts of a flower and the function of each part (stamen, pistil, petals, sepals, anther, stigma, ovary, ovules).	K	1f, 2	U
The student knows that the internal balance of chemicals in an organism varies during the egg producing cycle.	K	1f, 2	H
The student knows that ovulation can be induced by chemical means.	K	1f, 2	H
The student knows the general sequence by which the monoploid (hapliod) gametes are developed during the process of meiosis.	K	1f	H
The student knows the development of the human animal as follows: (1) formation of eggs and sperms, (2) sex organs involved in transporting the egg and sperm, (3) union of the egg and the sperm and (4) sequence of development from zygote through embryo through fetus to birth.	K	1f, 2	H
The student knows the function in mosses, ferns, and flowering plants of the following: (1) reproductive parts of each type of plant, (2) plant structure in which meiosis occurs, and (3) sequence of the alternation of generations.	K	1f	H

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1 Biology
1.2 Biology of the Organism
1.25 Reproduction and Development

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.252 Fertilization			
The student knows that the union of gametes (fertilization) is necessary to restore normal gene complement and to produce viable offspring.	K	2	U
The student knows the process of pollination and the special structures which promote the process.	K	1f, 2	H
The student knows the process by which pollen releases sperm nuclei that fertilize the eggs of the plant.	K	2	U
The student knows that plant seeds can be found almost everywhere.	K	1f	I

Science

1 Biology
1.2 Biology of the Organism
1.25 Reproduction and Development

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.253 Embryonic Development			
The student knows the names and functions of the parts of the seed, the protective covering, the food supply, and the little plant.	K	1f	P
The student is able to compare development in two different species.	P	2	I
The student knows that growth in size or the stage of development proceeds in an orderly sequence but not on a set time schedule.	K	2	H
The student knows the stages of embryonic development in selected organisms.	K	1f, 2	H
The student knows the layers which develop in selected animal embryos and the organ systems which develop from them.	K	1f, 2	H
The student is able to classify embryos or larva from recognition of their pattern of development.	P	1d, 1f, 2	H
The student knows the fate of a mammalian embryo and the embryo of other classes of animals if mechanisms for protection and nourishment should break down during the embryonic period.	K	1f, 2	H

1 Biology
1.2 Biology of the Organism
1.25 Reproduction and Development

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.254 Development as an Individual			
The student knows that many plants start from seeds.	K	1f	P
The student is able to design an experiment to test the hypothesis that seedling growth and development is directly proportional to temperature.	P	2	I
The student is able to identify the male and female parent and the offspring in various animal families.	P	1f, 1a	P
The student knows that the process of sexual maturation can precipitate gross structural change in the developing organism.	K	2	U
The student knows that different species of birds make different kinds of nests.	K	1f	P
The student knows that a bird develops from a small part of the egg and most of the egg serves as food as the baby bird develops.	K	1f	P
The student knows that some young birds are helpless when hatched and must be cared for; others can partly take care of themselves.	K	1f	P
The student is able to recognize when young birds are helpless after hatching and must be cared for or when they are able to take care of themselves.	P	1f	P
The student knows the basic life cycle of reptiles.	K	1f	P
The student knows the two basic life cycles of insects.	K	1f	P

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1 Biology
1.2 Biology of the Organism
1.25 Reproduction and Development

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.254 Development as an Individual (Cont.)			
The student knows the basic life cycle of amphibians.	K	1f	P
The student knows the basic life cycle of mammals.	K	1f	P
The student knows the basic life cycle of birds.	K	1f	P
The student is able to classify animal mothers into (1) mothers who bare living babies and (2) mothers who lay eggs.	P	1f	P
The student knows the change of properties in a growing plant (leaf change, leaf fall, root growth).	K	1f, 1d	P
The student knows that not all people grow at the same rate.	K	2	P
The student knows that individuals grow to varying final states.	K	2	P
The student knows each organism has its own process of growth and development.	K	1f, 2	I
The student knows that growth in a many-celled organism consists of multiplication and differentiation of cells.	K	1f	I
The student knows that growth, although continuous from infancy to adulthood, passes through various stages.	K	1f	U
The student knows the definition of birth, death, survival, and adaptation.	K	1f	U
The student knows that some insects pass through four sequential stages of development while others do not.	K	1f	I

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1 Biology
1.2 Biology of the Organism
1.25 Reproduction and Development

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.254 Development as an Individual (Cont.)			
The student knows that grasshopper eggs are laid in the ground in the fall, hatch in the spring, and that the adult grows further by moulting (shedding its skin to grow).	K	1f	I
The student knows the three stages of development of a frog (egg, tadpole, and the adult frog).	K	1f	I
The student knows that humans develop two sets of teeth (milk and permanent teeth).	K	1f	I
The student knows that monocotylendones (one seedleaf) and dicotyledons (two seedleaf) are the two main kinds of flowering plants.	K	1f	I
The student knows the steps in fruit development and maturation.	K	2	H
The student knows the higher plants have buds which grow into flowers, and that fruits containing seeds develop from the flower with new plants developing from the seeds.	K	1f	I
The student is able to construct and test a hypothesis based on the concept that seed germination requires warmth, moisture, and oxygen.	P	1	U
The student knows the distinction between male and female organisms by observation of (1) external structure, (2) behavior, (3) chemical makeup.	K	2	H
The student knows that seasonal changes bring about a change in the stage of the life cycle of various organisms (e.g., hibernation, budding, building new nest, migration).	K	2	I

1 Biology
1.2 Biology of the Organism
1.25 Reproduction and Development

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.255 Asexual Reproduction			
The student knows that plants and some animals can grow whole new organisms from certain excised body parts.	K	2	U
The student knows several kinds of reproduction involving only one parent.	K	2	U
The student knows the difference between asexual and sexual reproduction as to the general processes involved in each type as well as the genetic advantages and disadvantages that are characteristics of each type of reproduction.	K	1f	H
The student knows the following asexual methods of reproduction: (1) budding, (2) fission, (3) spore formation, (4) vegetive reproduction.	K	1f	H

Science

1 Biology
1.2 Biology of the Organism
1.26 Human Biology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.261 Health and Hygiene			
The student knows the proper method of brushing his teeth.	K	2	P
The student knows that teeth decay as a result of bacterial digestion of sugar.	K	2	P
The student knows that dentists can often stop decay by grinding out the decaying part and prevent further decay by filling the resulting hole.	K	2	P
The student knows that the eyes of humans are well protected by bones, eyelids, eyelashes, eyebrows, blinking, and tearing.	K	2	P
The student knows that our eyes may be injured by small or sharp objects striking them.	K	2	P
The student is able to describe how to take proper care of the skin (face and hands), teeth, hair, and nails.	P	1f	P
The student knows the importance of physical fitness.	K	1f	P
The student is able to recognize if a person has proper posture in standing, walking, and sitting.	P	2	P
The student knows the four major food groups (meats, dairy products, fruits and vegetables, breads and cereals) and the daily requirements of each.	K	1f	P
The student knows that the nutrients--fats, carbohydrates, and protein--are necessary to maintain good health.	K	1f	I
The student is able to explain why fruits and vegetables, dairy foods, breads and cereals, or meat, fish and eggs are necessary for good health.	P	1f	P

1 Biology
1.2 Biology of the Organism
1.26 Human Biology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.261 Health and Hygiene (Cont.)			
The student knows that oxygen is needed for man to survive.	K	1f	P
The student knows the importance of regular physical examinations.	K	1f	P
The student knows that cuts and injuries should be cared for immediately so they will heal quickly.	K	2, 1f	P
The student knows that after exercise a period of rest is needed for the body to maintain equilibrium.	K	2	P
The student knows that there are effective methods used to prevent the spread of disease (e.g., immunization, isolation, personal cleanliness, and environmental cleanliness).	K	1f	P
The student knows that people have problems and that there are people and agencies to whom you can turn for help (e.g., firemen, policemen, doctors, social workers).	K	1f	P
The student knows the physiological and psychological effects of smoking, drinking, and drugs upon the human body.	K	1f	I
The student knows there are people and agencies for emergency situations involving the health of an individual.	K	1f, 2, 3b, 5	I
The student knows the importance of physical fitness and regular physical examinations for good health.	K	1f	I
The student knows the most effective methods used to prevent the spread of disease.	K	1f	I

Science

1 Biology
1.2 Biology of the Organism
1.26 Human Biology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.261 Health and Hygiene			
The student knows the function of four general groups of disease-causing microorganisms: (1) virus, (2) fungus, (3) bacteria, (4) protozoa.	K	1f	I
The student knows the three main types of bacteria: coccus, bacillus, spirillum.	K	1f	I
The student knows the effect of the coordinated action of the respiratory, endocrine, digestive, and circulatory system on food consumed by man.	K	1f, 2	H
The student knows the products resulting from the action of human systems on food in terms of growth, heat, energy, and excretory products.	K	1f, 2	H
The student knows the contribution of scientists (e.g., Pasteur, Jenner, Lister, Salk, Fleming, and Koch) toward the control of disease producing agents.	K	4	H

Science

1 Biology
1.2 Biology of the Organism
1.26 Human Biology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.262 Structure and Function			
The student knows the functions of the tongue.	K	1f, 2	P
The student is able to classify objects by taste.	P	1f, 2	P
The student knows the functions of the ear.	K	1f, 2	P
The student knows how vibrations are conducted through the outer ear, the eardrum, the middle ear, and the inner ear of the human ear.	K	1f, 2	P
The student is able to classify objects by the sound they make.	P	1f, 2	P
The student knows the functions of the nose.	K	1f, 2	P
The student is able to classify objects by smell.	P	1f, 2	P
The student knows the functions of the eyes.	K	1f, 2	P
The student knows the function of the iris and the pupil of the human eye.	K	1f, 2	P
The student is able to identify the sense or senses used in examining a given object.	P	1f, 2	P
The student knows that the heart pumps blood through tubes in the body.	K	1f, 2	P
The student is able to classify objects by color.	P	1f, 2	P
The student is able to identify the primary colors.	P	1f, 2	P

Science

1 Biology
1.2 Biology of the Organism
1.26 Human Biology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.262 Structure and Function (Cont.)			
The student knows that the development of the science of genetics is producing means to counteract genetic errors.	K	2	U
The student knows the location and name of these bones and their function: (1) skull, (2) backbone, (3) ribs, (4) shoulder blade, (5) upper arm bone, (6) lower arm bone, (7) hipbone, (8) thighbone, (9) knee cap, (10) shinbone, (11) heelbone, (12) toe and finger bones.	K	1f, 2	H
The student knows the predominant types of human muscle tissue and their functions.	K	1f, 2	U
The student knows that the skeletal system of man is used for support, locomotion, and protection.	K	1f, 2	U
The student knows that opposing muscles work to cause movement of the body.	K	1f, 2	U
The student knows how muscles and skeleton work together to produce locomotion.	K	1f, 2	H
The student knows the function of lungs, nose, nasal passage and windpipe in the respiratory process.	K	1f	U
The student knows the major structures of the human nervous system and their functions.	K	2	H
The student is able to relate the function of an organ to the function of the system in which it is found.	P	2	U

Science

1 Biology
1.2 Biology of the Organism
1.26 Human Biology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.262 Structure and Function (Cont.)			
The student is able to describe the shape and texture of objects by using the sense of touch.	P	1f, 2	P
The student is able to recognize objects by using the sense of touch.	P	1f, 2	P
The student knows the parts of the digestive system and can state the function of each part: (1) mouth, (2) teeth, (3) tongue, (4) food pipe, (5) stomach, and (6) intestine.	K	1f, 2	I
The student knows and can name the function of the major parts of the central nervous system: (1) the brain (cerebellum, cerebrum, and medulla) and (2) the spinal cord.	K	2	I
The student knows the parts and functions of the human circulatory system including the heart, arteries, veins, arterioles, and capillaries.	K	1f, 2	I
The student is able to match the human body systems (skeletal, muscular, digestive, circulatory, and respiratory) to their major functions.	P	1f, 2	I
The student knows the parts and functions of (1) salivary glands, (2) mouth(s), (3) general esophagus, (4) sphincter muscle, (5) stomach, (6) gall bladder, (7) liver, (8) pancreas, (9) large intestine, (10) small intestine, (11) appendix, (12) rectum.	K	1f, 2	U
The student knows the major endocrine structures in the human body and a function of each major structure.	K	2	H
The student is able to infer the function of an organ or system from its structure and vice versa.	P	2	U

Science

1 Biology
1.2 Biology of the Organism
1.26 Human Biology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.263 Human Genetics			
The student knows that the principles of inheritance generally apply to human inheritance in the same way as to other organisms.	K	2	U
The student is able to analyze a family tree in terms of several genetic traits as hair color, ability to roll the tongue, handedness, etc.	P	1e, 1p, 2	H

1 Biology
1.2 Biology of the Organism
1.26 Human Biology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.264 Human Behavior			
The student knows the relationship of the behavior of a person who is threatened, then struck by an object, to internal changes in the endocrine and nervous system.	K	1a, 1f, 2	H
The student is able to separate from everyday acts those actions which are learned and those that are not.	K	1f	I

Science

1 Biology
1.2 Biology of the Organism
1.27 Structure and Function of Organisms

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.271 Structure			
The student knows the basic function of roots, stems, leaves, and flowers.	K	2	P
The student knows the function of several digestive enzymes.	K	2	U
The student knows the transport systems of plants (e.g., water, food).	K	1f	I

Science

1 Biology
1.2 Biology of the Organism
1.27 Structure and Function of Organisms

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.272 Function			
The student knows the basic structural characteristics of plants, animals, and other complex organisms.	K	2	I

Science

1 Biology
1.2 Biology of the Organism
1.27 Structure and Function of Organisms

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.273 Relationship Between Structure and Function			
The student knows that there are tubes in stems that carry food and water.	K	1f	P
The student knows that the water in the soil is drawn up through roots and up through tubes in the tree and that the water goes through the stem to the leaves where some of the water evaporates.	K	1f	P
The student knows the difference between whole blood and blood plasma on the basis of their constituents and their functions in transfusions.	K	1f, 2	U
The student knows the difference between blood and lymph on the basis of their constituents and their function.	K	1f, 2	U
The student knows the mechanisms by which materials are transported in complex organisms.	K	2	U
The student knows that a plant gets air through its leaves, water through its roots, and that the sun helps it to make food.	K	1f	P
The student knows that in many-celled organisms, groups of cells and tissues are organized into organ systems which are specialized to perform the bodily functions.	K	1f	I
The student is able to observe that the efficiency of circulation depends on the ability of the heart to pump oxygenated blood.	P	2	U
The student knows the following conducting parts of the circulatory system: (1) capillary, (2) artery, (3) vein, (4) arteriole, (5) lymph valve.	K	2, 1f	U

1 Biology
1.2 Biology of the Organism
1.27 Structure and Function of Organisms

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.273 Relationship Between Structure and Function			
The student knows that the same physiological factors affect the rate of capillary circulation as affect the rest of circulation.	K	2	U
The student is able to measure the effects of some physical factors on the rate of capillary circulation.	P	2	U

Science

1 Biology
1.3 Natural Systems
1.31 Natural Environment

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/E
1.311 Biotic (Living Things)			
The student knows how various plants or plant products are useful to man.	K	1f	P
The student knows some of the kinds of plants and animals that inhabit a pond.	K	1f, 2	P
The student knows that the basic needs of most organisms are water, air, food.	K	1f, 2	P
The student is able to observe the environment and record his observations.	P	1f, 2	I
The student knows that organisms in an aquarium interact to keep it balanced.	K	1f, 2	P
The student knows ways in which wildlife become exterminated.	K	1f, 2	P
The student knows that conservation is the protection and wise use of our natural resources.	K	1f, 2	P
The student is able to tell from records of tracks the nature of the animal that made them.	P	1a, 1c, 1f, 2	P
The student is able to tell what animals are in a region and what they are eating from their feeding signs.	P	1a, 1b, 1c, 1f, 2	P
The student is able to tell the types of animals that will be found in certain homes (e.g., nests, mounds, etc.).	P	1a, 1b, 1c 1f, 2	[illegible]
The student knows that living organisms are a highly organized aggregation of matter.	K	1b, 2	I
The student knows types of land utilization and how they influence life patterns.	K	1f, 2	I
The student knows that there are ecological changes in an area over a period of time.	K	1f, 2	I

1 Biology
1.3 Natural Systems
1.31 Natural Environment

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.311 Biotic (Living Things) (Cont.)			
The student knows the effect of change in temperature, light, energy, and dissolved gases on producers and consumers in a living system.	K	1d, 1f, 2	H

1 Biology
1.3 Natural Systems
1.31 Natural Environment

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.312 Abiotic (Non-Living Things, Physical Settings)			
The student knows that seasonal changes affect living things.	K	1f, 2	P
The student knows the effects of erosion (e.g., rain, wind, flood) on soil, rivers, watersheds, etc.	K	1f, 2	P
The student knows the characteristics of the desert.	K	2	P
The student knows ways plants help make good soil (e.g., roots hold in water, roots keep soil loose, roots keep soil from washing or blowing, plants decay, plants grow and break up rock).	K	1f, 2	P

1 Biology
1.3 Natural Systems
1.31 Natural Environment

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.313 Interactions			
The student knows that weather conditions affect water, soil, forest, and wildlife.	K	1f, 2	P
The student knows that the body coverings of some animals are often suited for the climate in which the animal normally lives.	K	2	P
The student knows the effects symbionts have upon each other and their relationship to one another.	K	1f, 1d, 2	I
The student knows the morphological adaptations of various aquatic animals (frog, starfish, etc.) to their environment.	K	1f	I
The student knows that some animals have body form or coloring that serves as a survival device (e.g., grasshoppers, birds, deer).	K	1f, 2	P
The student knows that an animal's breathing structure (lungs or gills) is best suited to the habitat where that animal lives.	K	2	P
The student knows that there are animals or plants that must live off other organisms in a parasitic way in order to carry on life processes.	K	1f, 2	P
The student knows that amphibians have breathing features that allow for existence in water and on land.	K	1f, 2	P
The student is able to relate the body structures of an animal to the habitat for which it is best suited.	P	1f, 1d	P

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.313 Interactions (Cont.)			
The student knows the interdependences of a particular plant or animal and its environment.	K	1f, 1d, 2	P
The student knows the effect of the various ocean environments upon ocean life.	K	1f, 2	I
The student is able to interpret observations of habits and structures of tide-pool animals in relation to survival in their environment.	P	1f	I
The student knows that interdependence exists among plants, animals, soil and the environment.	K	1f, 2	P
The student knows that living things use energy and materials from living and non-living things in their environment.	K	1f, 2	P
The student knows trees and other plant life provide food and shelter for animals.	K	1f	P
The student knows the environmental conditions necessary for parasitic growth.	K	1f, 2	I
The student knows what his responsibilities to his natural environment are.	K	1f, 2	I
The student knows the interrelation between the animals which inhabit the desert and the desert environment.	K	1f	I
The student is able to interpret observations of the characteristics of things that inhabit the desert in relation to their survival there.	P	1f, 2	P

Science

1 Biology
1.3 Natural Systems
1.31 Natural Environment

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.313 Interactions (Cont.)			
The student knows the conditions and materials which help plant growth (e.g., air, water, organic material, correct light and temperature).	K	1f, 1d	I
The student is able to devise means to study a natural community in its setting (pond, vacant lot, nesting bird).	P	1c, 1d, 1e, 1f, 1i, 1L, 2	H
The student knows the interrelation between the living things in an aquatic environment (e.g., benefits of one plant or animal to the other animals).	K	1f	I
The student is able to determine how an environment meets the basic needs of an organism.	P	2	I
The student knows that the interacting systems of any ecosystem require continuous energy input.	K	1a, 1b, 1f, 1L, 2	H
The student knows the relationship of life forms in a natural community to themselves and to the physical environment.	K	1e, 1f, 2	H

1 Biology
1.3 Natural Systems

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.32 Cycles in Nature			
The student knows that "there is no 'away' to throw things."	K	1a, 1f, 1g, 1h, 1i, 1j, 1k, 1L, 1m, 2, 3a, 3b, 4 5	

Science

1 Biology
1.3 Natural Systems
1.32 Cycles in Nature

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.321 Biotic (Living)			
The student knows that the "food chain" is the hierarchical sequence according to which living things feed upon one another.	K	1f, 2	I
The student is able to see the implications for the whole process of any interruption or disruption of the "food chain."	P	1f	I

Science

1 Biology
1.3 Natural Systems
1.32 Cyles in Nature

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.322 Abiotic (Non-Living)			
The student knows the water cycle is to be defined as water moving from the atmosphere to the lands and seas and then back to the atmosphere.	K	1f, 1b	P
The student knows that O_2 is produced by plants and is used by the animals which in turn give of CO_2 to start the process over again (CO_2 - O_2 cycle).	K	1f	I
The student knows that there is a broad cycle of water movement from the atmosphere to the lands and seas and back to the atmosphere.	K	1f	I
The student is able to diagram the basic water cycle.	P	1f	I

1 Biology
1.3 Natural Systems

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.33 Population Genetics			
The student knows that like produces like.	K	1f	P
The student knows that small numbers of genes in the gene pool are different and that this fact makes it possible for the population to respond to stresses (changes) imposed on it by the environment.	K	1f, 2	H
The student knows some effects of introducing new genes into a gene pool.	K	2	H
The student is able to calculate, using the binomial expansion process, the predicted frequency of phenotypes in a population (Hardy-Weinberg principle).	P	1f, 2	H
The student knows the genetic principles which apply to families can be applied to population as well.	K	1f	H
The student knows most genes in the gene pool are the same, for a given trait, and that this fact contributes to the overall stability of the trait.	K	1f, 2	H
The student is able to apply the binomial expansion process to determine gene frequency in a stable population (Hardy-Weinberg principle).	P	1f, 2	H
The student knows the effects of uncontrolled population growth of any species and can relate this to human populations.	K	1d, 1f, 2	H
The student is able to carry out a serial dilution.	P	1f, 2	U

Science

1 Biology
1.3 Natural Systems

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.34 Evolution			
The student knows that living things change through time.	K	1f, 2, 4	P
The student knows that organisms reproduce other organisms like themselves yet slightly different.	K	1f	I
The student knows that structural adaptations to the environment have occurred slowly.	K	1f, 2, 4	I
The student knows the evidence indicating that the single-celled organisms which developed in the early seas may have given rise to the many-celled organisms of later eras.	K	1f, 4	I
The student knows the importance of the evolution model to biological sciences.	K	1b, 1c, 1L, 2, 4	H
The student knows that humans have exercised artificial selection on natural populations with the result of increasing the rate and direction of change.	K	2, 3	H
The student knows that Darwin's theory of natural selection involves concepts of overpopulation, variation, fitness to meet environmental stress, inheritance of traits.	K	2	H
The student knows the main contributors to our present evolution model.	K	1b, 1c, 1L, 2, 4	H
The student knows the predominant theories concerning origin of life (e.g., theory of special creation, autotroph hypothesis, heterotroph hypothesis).	K	1c, 1g, 2, 4	H

1 Biology
1.3 Natural Systems

Goal	**Knowledge or Process**	**Program Goal to Which this Goal Contributes**	**Appropriate Initial Instructional Level P/I/U/H**
1.34 Evolution (Cont.)			
The student knows factors of the evolutionary process that produce changes within a species.	K	1f, 1c, 2	H
The student is able to collect and interpret data from mutation experiments.	P	1f	H

Science

1 Biology
1.4 Ecosystems

<table>
<tr><th>Goal</th><th>Knowledge or Process</th><th>Program Goal to Which this Goal Contributes</th><th>Appropriate Initial Instructional Level P/I/U/H</th></tr>
<tr><td>1.4 Ecosystems
The student is able to distinguish a stable ecosystem from an unstable one based upon such characteristics as the following:<table><tr><th>Stable</th><th>Unstable</th></tr><tr><td>complex</td><td>simple</td></tr><tr><td>many species</td><td>few species</td></tr><tr><td>quality</td><td>quantity</td></tr><tr><td>high information</td><td>low information</td></tr></table></td><td>K</td><td>2</td><td>H</td></tr>
</table>

Science

1 Biology
1.4 Ecosystems

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.41 Brosphere			
The student knows there is a flow of matter and energy between the organism and environment.	K	1f, 1b	I

1 Biology
1.4 Ecosystems

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.42 Biome The student knows several major earth biomes and biotic and abiotic characteristics of each.	K	2	H

Science

1 Biology
1.4 Ecosystems

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.43 Community			
The student is able to collect data from natural environments on biotic and abiotic factors.	P	1f, 2	H
The student knows the relationship between producers and consumers in the ecosystem.	K	2	P
The student knows that every possible kind of symbiotic relationships exist in organisms (e.g., on a scale of (+), (-), (o) where (+) means an addition to population, (-) means a loss to the population, and (o) means no effect, the relationships that appear are: (++) (--) (+-) (-o) (+o) (oo)	K	1f, 2	I
The student knows that cycles of water, CO_2-O_2, and nitrogen and minerals are necessary to maintain closed ecosystems (e.g., sealed aquaria, long space flights and planet earth).	K	1a, 1d, 1f, 2, 5	H
The student knows that a community is defined as the living things at a given location in space and time.	K	1b, 2	H
The student is able to interpret data collected from natural environments regarding producer-consumer and biotic-abiotic relationships.	P	1f, 2	H

Science

1 Biology
1.4 Ecosystems

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.44 Management			
The student knows methods by which man destroys natural resources.	K	2	P
The student knows that man like all other living things is dependent on his environment and all matter and living things in it.	K	1f	I
The student knows that an energy pyramid is necessary to maintain predator species; there must be more energy and mass in a population of prey than in the population of predators feeding upon it.	K	2	H
The student knows that natural resources include things such as water, wildlife, forest, soil, minerals and air.	K	1f, 1b, 2	P
The student knows the interrelationship of our natural resources.	K	2	P
The student knows various methods of conserving wildlife (e.g., game reserves, hunting seasons, restrictions).	K	2	P
The student knows man is dependent on natural resources (e.g., tree usage, fresh air, water, fertile soil, etc.).	K	1f, 2	P
The student knows methods of conserving forest resources (e.g., being careful of fire, plant removal).	K	1f	P
The student knows the importance of water conservation (e.g., uses of water, where local supplies come from, how lack of water supply would affect local communities, methods to replenish water supply, ways water is being wasted, and water storage).	K	2	P

1 Biology
1.4 Ecosystems

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.44 Management (Cont.)			
The student knows various uses for trees.	K	1f	P
The student knows how important conservation is to the well-being of the community.	K	1f	P
The student knows dangers of not conserving natural resources (e.g., air and water pollution, less wildlife, forest and soil).	K	2	P

Science

1 Biology
1.4 Ecosystems

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.45 Matter			
The student knows how the balance of nature can be upset (e.g., overgrazing of land by animals, removal of natural enemies, etc.).	K	2	P
The student knows that energy bio-mass and numbers pyramids have important implications for closed ecosystems (e.g., sealed aquaria, space ships, planet earth).	K	2	H

Science

1 Biology
1.4 Ecosystems

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.46 Energy			
The student knows that matter cycles within an ecosystem (e.g., a pond) while energy tends to move through it.	K	2	H
The student knows the ecosystem concept.	K	2	H
The student knows that a numbers pyramid exists in any food chain. There are generally fewer and fewer organisms as one moves to higher consumer levels (e.g., number of lions compared to zebras).	K	2	H

Science

1 Biology
1.5 Molecular Biology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.5 Molecular Biology The student knows that life functions ultimately take place at the molecular level.	K	2	H

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.51 Energy			
The student knows that living systems gain energy when large molecules breakdown to form small molecules.	K	1f, 2	H
The student knows that living systems must provide energy for atoms or small molecules to be formed into large molecules (synthesis).	K	1f, 2	H

Science

1 Biology
1.5 Molecular Biology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.52 Information			
The student knows that a separate enzyme exists for each of the thousands of different chemical reactions that occur in cells.	K	1f, 2	H
The student knows the sequence of events that causes a bit of information from the DNA molecule to direct the formation of protein in the cell.	K	1f, 2	H

Science

1 Biology
1.5 Molecular Biology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
1.53 Interaction			
The student knows the structure of the DNA molecule and the relationship of this structure to the production of protein and the reproduction of itself.	K	1f, 2	H
The student knows that most life processes obtain their energy requirements directly from the particular structure of the adenosine triphosphate (ATP) and the ATP-ADP cycle.	K	1f, 2	H
The student knows that the interdependence of living things and their environment is related to the transformation of matter into different combinations (chemical change).	K	1f	I
The student is able to manipulate models of molecules (e.g., "tinker toys") in order to demonstrate basic energy information and molecular relationships.	P	1f, 1L	H

Science

2 Physical Science
2.1 Chemistry
2.11 Matter (Chemical Materials)

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.111 Characteristics			
The student knows that anything that occupies space is defined to be matter.	K	2	P
The student knows that the terms "object" and "substance" are general names for matter.	K	2	P
The student knows that chemistry is defined to be the branch of science that deals mainly with the composition of matter and the changes that it undergoes.	K	2	I
The student knows that space is defined to be the expanse in which all matter exists and in which all material changes take place.	K	2	P
The student knows that over a period of time substances may change in their form, properties and/or position due to the interaction of matter.	K	2	P
The student is able to identify the products resulting from a change of matter. (They may be in several forms of matter or energy, e.g., a decaying log yields wood chips, wood powder, and heat energy.)	P	2	U
The student is able to demonstrate the law of conservation of matter: changing matter to matter, matter to energy, energy to matter.	P	2	I
2.1111 Mass			
The student knows that mass is defined to be the amount of matter in an object.	K	2	P

2 Physical Science
2.1 Chemistry
2.11 Matter (Chemical Materials)
2.111 Characteristics

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.1111 Mass (Cont.)			
The student is able to measure the mass (weight) of substances.	P	2	U
The student is able to calculate the total mass of a quantity of like particles by multiplying the number of particles by the mass of one particle.	P	1d	H
The student is able to measure the quantity of mass that is conserved by measuring the mass before and after a chemical or physical change takes place.	P	1c, 2	U
2.1112 Volume			
The student knows that the volume of an object is defined as the amount of space it occupies (capacity).	K	2	I
The student is able to measure the dimensions of regular solids and calculate their volumes.	P	2	I
The student is able to measure the volume of irregular solid objects.	P	2	U
The student is able to measure the volume of liquids.	P	2	I
2.1113 Density			
The student knows that density is defined to be the ratio of the mass of an object to its volume.	K	2	U
The student is able to determine the density of objects (divide mass by volume).	P	1f, 1m, 2	U
The student is able to compare the densities of liquids.	P	2	H

Science

2 Physical Science
2.1 Chemistry
2.11 Matter (Chemical Materials)

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.112 Structure			
The student knows that the atom is considered to be the smallest unit of matter that can take part in a chemical change.	K	2	I
2.1121 Atoms			
The student knows that the stable parts of which an atom is composed are considered to be: the protons, neutrons, electrons.	K	2	I
The student is able to sketch a model of an atom, identifying the nucleus, protons, electrons, and neutrons.	P	1i	I
The student knows that the proton is considered to be the smallest stable part of an atom which has a positive charge.	K	2	I
The student knows that the electron is considered to be the smallest stable part of an atom that has a negative charge.	K	2	I
The student knows that the neutron is considered to be the smallest stable part of an atom that has a neutral charge.	K	2	I
The student knows that the nucleus is considered to be the central part of the atom and contains the protons and neutrons.	K	2	I
The student knows that almost the entire mass of an atom is considered to be located in the nucleus.	K	2	I

2 Physical Science
2.1 Chemistry
2.11 Matter (Chemical Materials)
2.112 Structure

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.1121 Atoms (Cont.)			
The student knows that the mass of a proton is approximately several thousand times that of an electron and about the same as the mass of a neutron.	K	2	H
The student knows that an atom is considered to contain an equal number of protons and electrons (it has a neutral charge).	K	2	I
The student knows that the atomic number of an element indicates the number of protons or the number of electrons in the neutral atom.	K	2	U
The student is able to compare the atomic number of an atom to the number of electrons it contains.	P	3c	U
The student knows that the ion is defined as an atom or a group of atoms bonded together that has an unbalanced electrical charge.	K	2	I
The student knows that an ion is formed when one or more electrons are removed from or added to a neutral atom or group of atoms. The ion will be positive if electrons are removed and negative if electrons are added.	K	2	H
The student knows that ionization energy is defined as the energy required to remove an electron from a neutral atom (e.g., light, heat, the energy of bombarding particles).	K	2	H
The student is able to predict what effect increasing the atomic number will have on the ionization energy.	P	2	U

Science

2 Physical Science
2.1 Chemistry
2.11 Matter (Chemical Materials)
2.112 Structure

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.1121 Atoms (Cont.)			
The student knows that ions or atoms are chemically reduced when they gain electrons.	K	2	U
The student knows the theory of the four quantum numbers (wave mechanics model of the atom) as an explanation of the structure of an atom and its characteristics and internal relationships.	K	2	H
The student is able to construct the Lewis structure (electron dot notation) of an atom using the theory of the four quantum numbers in the wave mechanics model of the atom.	P	2	H
The student is able to compute the electron orbitals possible at each energy level of an atom using his knowledge of the four quantum numbers in the wave mechanics model.	P	1d	H
The student is able to compare atomic models of isotopes of the same element and explain that they differ only in the number of neutrons contained in the nuclei.	P	2	H
2.1122 Molecules			
The student knows that a molecule is defined as the smallest particle of a pure element or a pure compound that can exist in the free state and still retain the chemical properties of the element or compound, and that the molecules of pure elements consist of one atom or two or more similar atoms while those of pure compounds consist of two or more different atoms.	K	2	U

Science

2 Physical Science
2.1 Chemistry
2.11 Matter (Chemical Materials)
2.112 Structure

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.1122 Molecules (Cont.)			
The student is able to identify the elements and the number of atoms of each element represented in a model or formula of a given molecule.	P	2	U
The student is able to predict the shape (geometry) of molecules.	P	2	U
The student is able to construct models of molecules.	P	2	I
The student knows that "chemical bond" is defined as the set of forces which holds atoms together in a molecule.	K	2	U
The student knows that there is space between the individual molecules in a quantity of matter.	K	2	I
The student knows that molecules are always in motion except possibly at absolute zero.	K	2	I
The student knows that some molecules will mix while other molecules will not.	K	2	I
The student knows that surface tension is a phenomenon attributed to the force of attraction between molecules of a liquid.	K	2	I
The student knows that soap helps oil and water molecules mix by breaking the surface film of the oil (caused by the attraction of like molecules for each other).	K	2	P

Science

2 Physical Science
2.1 Chemistry
2.11 Matter (Chemical Materials)
2.112 Structure

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.1123 Crystals			
The student knows that a crystal is defined as a solid in which the pattern of atoms forms a characteristic geometric shape.	K	2	P
The student is able to identify crystals found in his environment (sugar, salt, moth crystals, etc.).	P	2	P
The student is able to construct models of crystals.	P	2	I
The student knows that under proper conditions, crystals form when the liquid evaporates from a solution containing dissolved materials.	K	1f	P
The student is able to grow crystals.	P	2	P

Science

2 Physical Science
2.1 Chemistry
2.11 Matter (Chemical Materials)

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.113 Elements			
The student knows that elements are defined to be those forms of matter in which all of the atoms are alike.	K	2	I
The student is able to test unidentified substances to determine what elements are present.	P	1m	U
The student is able to distinguish between an element and a compound; an element contains only one kind of atom, a compound consists of two or more kinds of atoms.	P	2	U
The student is able to classify common substances as elements or compounds.	P	1b	U
The student knows that the periodic table of the elements is a classification system in which the elements are arranged in the order of increasing atomic numbers.	K	2	H
The student knows that the horizontal rows of a periodic table of the elements are called periods and contain those elements which have the same principal quantum number.	K	2	H
The student knows that the vertical columns in a periodic table of the elements are called groups and contain those elements which have the same number of valence electrons; as a result they have similar chemical properties.	K	2	H
The student knows that chemical families are subsets of the group of elements. The arrangement of the electrons in the atoms and the chemical properties of the elements are more nearly alike within a family than they are between the families in a group.	K	2	H

2 Physical Science
2.1 Chemistry
2.11 Matter (Chemical Materials)

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.113 Elements (Cont.)			
The student knows that inert elements are defined to be those elements that will not react chemically with each other or with other elements.	K	2	U
The student knows that the principal quantum number in the wave mechanics model of the atoms indicates the relative energy levels of the electrons (corresponds to the orbits of the electrons in the Bohr model).	K	2	H
The student is able to predict the effect of increasing atomic number on atomic radius (using his knowledge of atomic structure).	P	1h	H
The student knows that in the Bohr model the nucleus of the atom is compared to the sun and the electrons to the planets in our solar system. As the energy of the electrons increases, they orbit the nucleus at successively greater distances.	K	[illegible]	H

Science

2 Physical Science
2.1 Chemistry
2.11 Matter (Chemical Materials)
2.114 Compounds

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.1141 Characteristics			
The student knows that when solutions of acids and bases are mixed, the hydrogen ions (H+) from the acid combine with the hydroxide ions (OH-) from the base to form water (H+OH-). The other ions from these compounds form a salt.	K	2	U
The student knows the Law of Multiple Proportions. (If the same two elements combine to form more than one compound (CO, CO_2), the mass of one element (oxygen) which combines with a fixed mass of another element (carbon) will be in a small whole number ratio.)	K	2	H
The student knows the Law of Definite Proportions. (For every sample of a particular compound the proportions by mass (weight) of the elements that make up the compound are always the same (e.g., in water the mass (weight) of hydrogen compared to that of oxygen is 1-8 regardless of the total amount of water considered.)	K	2	H
The student is able to predict (using his knowledge of the Law of Definite Proportion) the amount of one element (A) needed to react with a given amount of a second element, (B) if the proportion is known for that compound.	P	1h	H
The student knows that a compound consists of molecules composed of two or more kinds of atoms and a mixture is composed of two or more kinds of molecules.	K	2	U
The student is able to describe the difference between compounds and mixtures.	P	2	U

Science

2 Physical Science
2.1 Chemistry
2.11 Matter (Chemical Materials)
2.114 Compounds

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.1141 Characteristics (Cont.)			
The student knows the names of basic chemical compounds.	K	2	H
The student is able to test substances to determine if they are compounds.	P	2	U
2.1142 Acids			
The student knows that acids are compounds, in water solutions, that have a sour taste and cause litmus paper to turn red.	K	2	P
The student is able to test solutions to determine if they are acid, base, or neutral (e.g., test with litmus paper).	P	2	I
The student is able to measure the strength of acids and bases.	P	2	U
The student knows that acids are compounds that dissociate in water to form hydrogen ions (H+).	K	2	U
The student knows that acids are compounds, in water solutions, which form hydrogen gas when they react with metals.	K	2	U
The student knows that acids react with carbonates to form carbon dioxide, water and a salt.	K	2	U
The student knows that neutralization is the process of reacting an acid with a base. (The hydrogen of the acid and the hydroxide ion of the base combine to form water.)	P	2	I

2 Physical Science
2.1 Chemistry
2.11 Matter (Chemical Materials)
2.114 Compounds

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.1142 Acids (Cont.)			
The student is able to decide which acid and base are required to prepare specific salts by the process of neutralization.	P	2	U
2.1143 Bases			
The student knows that a base is a solution of a compound that has a bitter taste, feels slippery when rubbed between the fingers, dissolves in grease, and turns litmus paper blue.	K	2	P
The student knows that bases are compounds that dissociate in water to form hydroxide ions (OH-).	K	2	U
2.1144 Salts			
The student knows that a salt is any ionic compound except those in which the positive ion is hydrogen (H+) or the negative is the hydroxide ion (OH-).	K	2	U
2.1145 Other Compounds			
The student knows that a chemical symbol is one or two letters used to represent an atom of a particular element. The first letter is always capitalized while the second letter is not (e.g., H-hydrogen, He-helium).	K	1j	U

2 Physical Science
2.1 Chemistry
2.11 Matter (Chemical Materials)
2.114 Compounds

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.1145 Other Compounds (Cont.)			
The student knows that a chemical formula is a symbol or group of symbols with subscript numerals that represent the kind of atoms and number of each in a particular molecule. (If the symbol of an element has no subscript number, it is assumed to be 1; e.g., H_2O = Hydrogen, 2 parts; Oxygen, 1 part.)	K	1j	U
The student is able to construct a chemical formula which matches a given model.	P	1m	H
The student knows that the valence electrons of an atom are those that are involved in chemical bonding with other atoms. The electrons are gained, lost, or shared. They usually are the highest energy electrons in the atom.	K	2	H
The student knows that the number of valence electrons and the types of orbitals they occupy are explained by the theory of the wave mechanics model of the atom and the conventions of the Lewis Structure (electron dot pattern) of the atom.	K	2	H
The student is able to determine the electron configuration of atoms.	P	1d	H

Science

2 Physical Science
2.1 Chemistry
2.11 Matter (Chemical Materials)

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.115 Mixtures - Solutions			
The student knows that a solution is defined to be a mixture of molecules in which the composition is uniform throughout. (Each part of the solution has the same composition as all others.)	K	2	U
The student knows that the parts of a solution are the solute and the solvent. The solvent is that part which dissolves the solute. The solvent is usually present in a greater amount.	K	2	U
The student is able to identify the solutes and solvents of a given solution.	P	2	U
The student knows that a standard solution has a definite concentration (contains a known amount of solute in a specified amount of solution or solvent).	K	2	U
The student is able to prepare various standard solutions and label them correctly.	P	2	U
The student is able to prepare standard solutions of acids, bases, and salts.	P	2	H
The student knows that a saturated solution contains all of the dissolved solute that it can hold at a particular temperature and pressure. (Undissolved solute must be present to insure that the solution is saturated.)	K	2	U
The student is able to prepare solutions to identify the materials used as a solute and solvent and to recognize saturated solutions.	P	1c	H

Science

2 Physical Science
2.1 Chemistry
2.11 Matter (Chemical Materials)

Goal	Knowledge or Process	Program Goal to Which This Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.115 Mixtures - Solutions (Cont.)			
The student knows that a solution is neutral if it contains equal numbers of hydrogen and hydroxide ions.	K	2	U
The student knows that a one molar solution (1M) contains one mole of solute in each liter of solution.	K	2	H
The student knows that some materials dissolve in water while other materials will not.	K	2	P
The student is able to determine the solubility of a substance in a liquid.	P	2	H
The student knows the difference between a pure substance and a mixture. (Pure substance contains only one kind of molecule whereas a mixture contains two or more kinds of molecules.)	K	2	I
The student knows that mixtures are defined to be aggregates of matter containing two or more kinds of molecules.	K	[illegible]	I
The student is able to separate a mixture of solids and liquids.	P	2	I
The student knows that some common materials are mixtures of two or more different substances.	K	[illegible]	P
The student knows that distillation is a process that can be used to separate substances that have different boiling temperatures. (The temperature of the mixture is controlled to allow each fraction to vaporize at successively higher temperatures. The vapors are continually condensed with each fraction collected in a separate container.)	K	2	U

Science

2 Physical Science
2.1 Chemistry
2.11 Matter (Chemical Materials)

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.115 Mixtures - Solutions (Cont.)			
The student knows that mixtures can be separated by making use of differences in properties such as solubility particle size, boiling points, etc. (filtering, distillation, etc.).	K	2	P
The student is able to describe how the parts of a filtering system interact.	P	2	I
The student is able to measure the pH of solutions.	P	2	U
The student is able to calculate the pH of strong acids and bases from their concentrations.	P	2	H

Science

2 Physical Science
2.1 Chemistry
2.11 Matter (Chemical Materials)
2.116 Phases

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.1161 Gases			
The student knows that a gas is a form of matter than has no definite volume or shape (it tends to occupy all of the space available).	K	2	P
The student knows that pure air is an invisible, tasteless, odorless gas. These properties may change when other substances are mixed with air.	K	2	P
The student knows that air occupies space.	K	2	P
The student knows that air surrounds the earth and is called atmosphere.	K	2	P
The student knows that air is composed of many different gases, each having its own specific properties.	K	2	I
The student knows that air is contained in many substances and objects.	K	2	P
The student knows that many objects which appear to be solid contain air.	K	2	I
The student knows that everything that exists on earth is at the bottom of a volume (ocean) of air.	K	2	P
The student knows that air changes as one goes away from the earth (into space -- pressure, chemical consistency, density, etc.)	K	2	I
The student knows that many materials that appear dry contain moisture.	K	2	P
The student is able to demonstrate that many materials which appear to be dry actually contain moisture (e.g., heating and condensing, pressing, squeezing, etc.).	P	2	P

Science

2 Physical Science
2.1 Chemistry
2.11 Matter (Chemical Materials)
2.116 Phases

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.1161 Gases (Cont.)			
The student knows that oxygen may enter water (e.g., at the surface, from the respiration of plants in water, or by being pumped into water).	K	2	P
The student knows that carbon dioxide is a gas that is more dense than air and will put out a flame.	K	2	I
The student is able to demonstrate that carbon dioxide gas will put out a flame.	P	2	I
The student knows how to test for the presence of carbon dioxide gas (limewater test, etc.).	K	1c	I
The student knows that the three phases of matter are liquid, solid, and gas. All matter can exist in one or more of these three phases.	K	2	P
The student is able to demonstrate the change of phases of matter (gases, liquids, solids).	P	1c	P
The student knows that the phases of matter (liquid, gas, or solid) are constantly changing.	K	2	P
The student knows that a dry gas is defined to be one that does not contain water vapor.	K	2	I
The student knows that Boyle's Law states that the volume of a dry gas varies inversely with the pressure, provided the temperature remains constant.	K	2	H

Science

2 Physical Science
2.1 Chemistry
2.11 Matter (Chemical Materials)
2.116 Phases

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.1161 Gases (Cont.)			
The student knows that Charles' Law states that the volume of a dry gas varies directly with the temperature measured on the Kelvin scale, provided the pressure remains constant.	K	2	H
The student knows that gases are more soluble in liquids at lower temperatures than they are at higher temperatures.	K	2	P
The student knows that according to Avogadro's hypothesis equal volumes of gas contain the same number of molecules if measured at the same temperature and pressure.	K	2	H
The student is able to compare the masses of equal volumes of different gases.	P	2	U
2.1162 Liquids			
The student knows that a liquid is a form of matter which has a definite volume but has no definite shape. (Liquids take the shape of their container.)	K	2	P
The student knows that water is present in one of its forms in air, in most soils, and in all living things.	K	2	I
The student knows that pure water is a clear, tasteless, odorless liquid. These properties may change when other substances are mixed with water.	K	2	P

2 Physical Science
2.1 Chemistry
2.11 Matter (Chemical Materials)
2.116 Phases

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.1162 Liquids (Cont.)			
The student knows that water freezes (ordinarily, N.B. super cooling) at a specific temperature when heat is removed.	K	2	P
The student knows that when water reaches its boiling point, the application of additional heat will cause no further change in temperature, but ordinarily, N.B. super heating, will cause the water to change its phase from a liquid to a gas.	K	2	P
The student is able to separate gases from the liquids in which they are dissolved. (Air bubbles out of water as water is heated, etc.).	P	2	P
The student is able to demonstrate the softening of hard water and explain why it is more desirable for home use than hard water.	P	2, 5	I
2.1163 Solids			
The student knows that a solid is a form of matter which has a definite volume and a definite shape.	K	2	P
The student knows that metals are the group of elements which have the following characteristics: conduct heat and electricity well, can be hammered into sheets (are malleable), can be drawn into a wire (are ductile) and normally form positive ions in a chemical reaction.	K	2	U

Science

2 Physical Science
2.1 Chemistry
2.11 Matter (Chemical Materials)

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.117 Physical Properties The student is able to identify physical properties of objects (e.g., volume, shape, mass, density, phase, texture, hardness, brittleness, ductility, malleability, color, transparency, translucency, opaqueness, viscosity, elasticity, specific heat, coefficient of heat expansion, heat conductivity, electrical conductivity).	P	2	P

Science

2 Physical Science
2.1 Chemistry
2.12 Energy Changes

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.121 Characteristics			
The student knows that some changes take place naturally while others are initiated by man.	K	2	P
The student is able to classify changes that matter has undergone as to whether they were man-made or occurred naturally.	P	2	P
The student knows that any change in matter involves energy.	K	2	P
The student is able to demonstrate that some changes in matter require the input of energy while other changes give off energy.	P	1h	P

Science

2 Physical Science
2.1 Chemistry
2.12 Energy Changes

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.122 Equilibrium			
The student is able to identify a chemical reaction at equilibrium.	P	2	H
The student knows that an equilibrium situation implies that two reactions are proceeding at equal rates in opposite directions.	K	2	H
The student knows the characteristics that identify chemical reactions at equilibrium.	K	2	H

Science

2 Physical Science
2.1 Chemistry
2.12 Energy Changes

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.123 Conservation			
The student knows the law of conservation of energy and matter: matter and energy cannot be created or destroyed but can be changed from one form to another (matter to matter, energy to matter, matter to energy, energy to energy).	K	2	I
The student knows that matter cannot be created or destroyed. Matter may be transformed from one form to another.	K	2	I
The student is able to demonstrate the law of conservation of energy: changing energy to matter, matter to energy.	P	2	I

2 Physical Science
2.1 Chemistry
2.12 Energy Changes

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.124 Chemical			
The student knows that some substances are combustible (fuel) and other substances are not combustible.	K	2	P
The student knows that combustion is the rapid oxidation of gases and produces heat and light (flame).	K	2	I
The student knows that some gases (oxygen) are necessary for combustion to take place and other gases prevent combustion (carbon dioxide).	K	2	P
The student knows that a source of heat energy is needed to start fuels burning (oxidation).	K	2	I
The student knows that burning (combustion-rapid oxidation) can be extinguished by cooling or removing the fuel.	K	2	I
The student knows that fuel must be heated to a high enough temperature to form a gaseous material called vapor. The mixture of vapor and oxygen ignite (flame), (e.g., a candle wick brings the wax to the flame continuously changing the wax to vapor).	K	2	I
The student knows that a flame is a mixture of glowing gases. At the center cone (next to the wick) the mixture of fuel, vapor and air is not burning and is the coolest part; the center cone contains partially burning materials and is warmer, while the top portion of the outer cone has the most complete combustion and is the hottest portion.	K	2	I
The student knows that the wax of a candle is a solid fuel composed of hydrogen and carbon (hydrocarbon).	K	2	I

Science

2 Physical Science
2.1 Chemistry
2.12 Energy Changes

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.124 Chemical (Cont.)			
The student knows that solid fuels and liquid fuels must be converted into a gaseous material (vapor) before they will ignite.	K	2	I
The student knows that fire will continue burning only when there is fuel and air and the kindling temperature is maintained.	K	1c, 1j	I
The student knows that oxidation is a process in which an element or atom loses electrons.	K	2	U
The student knows that oxidation is a process in which an element or atom combines with oxygen. Energy is usually liberated.	K	2	U
The student knows that oxidation is defined to be the process in which a substance combines with oxygen (rust).	K	2	P
The student knows that corrosion is the slow wearing away of solids, especially metal, caused by a chemical reaction.	K	2	P
The student is able to identify objects in his own environment in which oxidation (rusting or tarnishing) or corrosion have taken place.	P	2	P
The student knows that some substances are susceptible to oxidation or corrosion while others are not (e.g., rust, tarnish).	K	2	P
The student knows that some substances retard oxidation or corrosion (e.g., paint, oil, etc.).	K	2	P

2 Physical Science
2.1 Chemistry
2.12 Energy Changes

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.124 Chemical (Cont.)			
The student knows that some substances change composition when exposed to weather, sun, etc. (e.g., mildew, rotting, etc.).	K	2	P
The student knows that some substances will retard the change in composition of objects that are exposed to the weather, sun, etc. (e.g., paint, oil, etc.).	K	2	P
The student is able to identify objects in his own environment which have undergone a change due to weathering and to describe the changes.	P	2	P
The student knows that chemical changes can be caused by light (e.g., photography, fading, etc.).	K	2	I
The student knows that special chemicals are used to develop and fix photographs.	K	2	I
The student knows that a chemical change takes place when existing chemical bonds in a molecule are broken and/or new bonds are formed.	K	2	U
The student knows that in a chemical reaction the reactants are those chemicals that combine to form new materials.	K	2	U
The student knows that a physical change is one in which the form of matter is changed but not the chemical composition.	K	2	I
The student is able to differentiate between chemical and physical changes of matter and to give examples of each.	P	2	P

2 Physical Science
2.1 Chemistry
2.12 Energy Changes

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.124 Chemical (Cont.)			
The student knows that in a chemical reaction the products are the new materials formed.	K	2	H
The student knows that exothermic chemical reactions are those in which energy is released (heat and/or light) as one of the products of the reaction.	K	2	H
The student knows that endothermic chemical reactions are those in which energy must be absorbed by the reactants in order for the reaction to proceed.	K	2	H
The student is able to measure the energy released or absorbed in a chemical reaction.	P	2	U
The student is able to measure the energy change accompanying a neutralization reaction.	P	2	H
The student knows that the amount of energy released in an exothermic reaction is equal to the amount of chemical potential energy that was present in the reactants minus the amount that remains in the products (conservation of energy).	K	2	H
The student knows that as the result of a chemical reaction, the atoms which make up the products are those that were present in reactants (conservation of matter).	K	2	H

2 Physical Science
2.1 Chemistry
2.12 Energy Changes

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.124 Chemical (Cont.) The student knows that the force which tends to separate the molecules of matter from one another (due to Kinetic Energy) are opposed by the force of attraction between the molecules. The forces of attraction are greater than the forces of separation in liquids and solids; the reverse is true in gases.	K	2	U

Science

2 Physical Science
2.1 Chemistry
2.12 Energy Changes

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.125 Physical			
The student knows that a physical change is one in which the form of matter is changed but not the structure of the molecules.	K	2	I
The student knows that when air pushes harder in one place than in another, the unbalanced force can be used to do work.	K	2	I
The student is able to describe situations within his own environment where moving air energy (wind) has done constructive and destructive work.	P	2	P
The student knows that moving and falling water has energy and can do constructive and destructive work.	K	2	P
The student is able to describe situations within his own environment where moving and falling water energy has done constructive and destructive work.	P	2	P

2 Physical Science
2.1 Chemistry
2.12 Energy Changes

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.126 Nuclear			
The student knows that nuclear fusion, the joining of the nuclei of atoms (e.g., of heavy hydrogen) is accompanied by the conversion of part of the mass into energy and that this is the principle of the hydrogen bomb.	K	2	U
The student knows that nuclear fission, the splitting of the nuclei of atoms, is accompanied by the conversion of part of the mass into energy and that this is the principle of the atomic bomb.	K	2	U

Science

2 Physical Science
2.1 Chemistry
2.13 Electrochemistry

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.131 Characteristics			
The student knows that chemical changes can be produced by the flow of electricity through solutions of certain compounds.	K	2	U
The student knows that electricty can be produced by the chemical action of certain solutions on two different metals.	K	2	I
The student is able to construct and operate an electrochemical cell.	P	2	U
The student knows that a chemical bond is defined to be the force between two atoms which holds them together in a molecule.	K	2	U
The student knows that a covalent bond is defined to be the net force of attraction between the nuclei of two atoms and the same pair of electrons; it holds the atoms together.	K	2	H

2 Physical Science
2.1 Chemistry
2.13 Electrochemistry

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.132 Oxidation Reduction			
The student knows that when many elements which are insoluble in water are oxidized or reduced, they form ions that are readily soluble in water.	K	2	H
The student is able to decide which substance is oxidized and which one is reduced in a chemical reaction.	P	2	H
The student knows that oxidation and reduction are two chemical processes that always occur simultaneously.	K	2	H
The student knows that the ions and atoms of the same element have different properties.	K	2	H
The student is able to measure the rate of oxidation in a chemical reaction.	P	2	H
The student is able to design industrial processes based on oxidation-reduction.	P	2	H

2 Physical Science
2.1 Chemistry
2.14 Organic Chemistry

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.141 Characteristics			
The student knows that bleach is a chemical used to remove unwanted coloring matter or stain from the fibers of a material (e.g., fabric, wood, paper, etc.).	K	2	I
The student knows that a preservative is a chemical substance that is added to a food or other organic matter to prevent or delay spoiling or decay.	K	2	I
The student knows that soap making is the process of combining a positive sodium ion from sodium hydroxide (lye) with a negative fat acid (stearic acid, olive oil, palm oil, etc.).	K	2	I
The student knows that humus is an ingredient of soil containing large amounts of decayed organic material that has lost its original structure and is beneficial to plant growth.	K	2	I
The student knows that organic chemistry is concerned with the study of carbon compounds.	K	2	H
The student knows that fermentation is defined to be the chemical process of changing sugar solution into alcohol and carbon dioxide. The sugar solution may be from natural sugars found in fruit juices.	K	2	P
The student is able to prepare an organic compound.			

Science

2 Physical Science
2.1 Chemistry
2.15 Biochemistry - Chemistry of Life Processes

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.151 Characteristics			
The student knows which of the chemical elements is present in carbohydrates, fats, or proteins.	K	2	U
The student is able to perform standard tests to classify foods containing carbohydrates, fats, or proteins.	P	2, 1f	I

Science

2 Physical Science
2.1 Chemistry
2.15 Biochemistry - Chemistry of Life Processes

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.152 Life Processes			
The student knows that living things require nourishment and must convert it into energy, through respiration and digestion for maintenance, growth and expenditure of energy.	K	2	I
The student is able to measure the amount of carbon dioxide produced by living things in the process of respiration.	P	2, 1f	U
The student is able to measure the amount of carbon dioxide produced by germinating seeds.	P	2, 1f	U
The student is able to identify the food types required by man each day for a balanced diet.	P	2	I
The student knows that photosynthesis is defined to be the process by which plants manufacture carbohydrates (sugars, starches, etc.).	K	2	I
The student knows that yeast in solution can cause fermentation by breaking down carbohydrates to form carbon dioxide and alcohol. (This action causes bread to rise.)	K	2	I
The student knows that the elements of which living things are composed are the same elements contained in non-living matter and are classified under the same system. (All matter is made from the same elements.)	K	2	I
The student knows that different kinds of plants require different conditions under which they will thrive (e.g., acid or alkaline soils, warm or cold temperatures, etc.).	K	2	I

Science

2 Physical Science
2.1 Chemistry
2.15 Biochemistry - Chemistry of Life Processes

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.152 Life Processes (Cont.)			
The student knows that plants need the minerals that are dissolved in ground water for nourishment.	K	2	P
The student knows that a fungus is defined to be a plant which is not green (contains no chlorophyll) and depends upon other plants or animals for food.	K	2	I

Science

2 Physical Science
2.1 Chemistry
2.16 Nuclear Chemistry

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.161 Characteristics			
The student knows that an alpha particle (α) is emitted from the nucleus of an atom. It is composed of two protons and two neutrons. The alpha particle has the same composition as a helium nucleus.	K	2	U
The student knows that when a beta particle (β) has lost much of its initial energy it is an electron.	K	2	U
The student knows that the force between particles which have the same electric charge is one of repulsion (like charges repel).	K	2	U
The student knows that binding forces are the forces which operate within the nucleus of an atom. They are not well understood.	K	2	U
The student knows that the binding energy of the nucleus is the potential energy resulting from the extremely large forces operating at very short distances in the nucleus of an atom.	K	2	U
The student knows that means have been devised for releasing and controlling the energy of the nucleus of an atom to produce controlled nuclear reactors (e.g., nuclear electrical energy plants).	K	2	U
The student knows that in radioactive decay the sum of the charges and the sum of the mass and the energy of the products must be equal to that of the original nucleus.	K	2	H

Science

2 Physical Science
2.1 Chemistry
2.16 Nuclear Chemistry

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.161 Characteristics (Cont.)			
The student is able to locate radioactive isotopes in tissue.	P	2	H
The student knows that the half-life of a radioactive isotope is the length of time required for one-half of the original atoms to decay (change) to some other element. The half-life is not dependent upon the initial amount but is constant for a particular isotope.	K	2	U
The student knows that radioactive decay is the process in which alpha particles, beta particles, or gamma rays are spontaneously emitted from the nucleus of an atom. (The original atom undergoes change as long as the process continues.)	K	2	U
The student is able to measure the half-lives of radioactive elements.	P	2, 1f	H
The student knows that beta particles (β) are emitted from the nuclei of radioactive atoms. Beta particles have the same charge and mass as electrons but have greater energies.	K	2	U
The student knows that gamma rays are emitted from the nuclei of radioactive atoms. They are quantities of electromagnetic wave energy similar to X-rays but have higher energies.	K	2	U
The student knows that radiation from the nuclei of radioactive atoms can knock electrons out of other atoms thereby forming ions out of them.	K	2	H
The student is able to measure the energy difference in the radiation from the nuclei of atoms.	P	1d, 1f	H

Science

2 Physical Science
2.1 Chemistry
2.16 Nuclear Chemistry

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.161 Characteristics (Cont.)			
The student knows that radioactive atoms emit one or more of the following: 1-alpha particles (α), 2-beta particles (β), and gamma radiation.	K	2	U
The student is able to identify those elements that are radioactive.	P	2	H
The student knows that when an alpha particle has lost much of its initial energy it gains two electrons and becomes a neutral helium atom.	K	2	U
The student knows that radiation emitted from the nuclei of radioactive atoms can form ions within the cells in living tissue; as a result the cells can no longer reproduce their own kind and the tissue dies.	K	2	U
The student knows that the radiation from the nuclei of radioactive atoms can expose photographic film.	K	2	U
The student knows that certain tissues in the body tend to accumulate particular elements. These may or may not be radioactive (e.g., bones-phosphorous, thyroid-iodine, etc.).	K	2	H
The student knows that radioactive isotopes which have short, half-lives can be used in medicine to destroy cancerous cells within the tissue that accumulates that element.	K	2	H
The student knows that the radioactive isotopes of an element have nuclei which emit radiation (e.g., alpha, beta or gamma).	K	2	H

2 Physical Science
2.2 Physics
2.21 Kinematics - Motion

Goal	**Knowledge or Process**	**Program Goal to Which this Goal Contributes**	**Appropriate Initial Instructional Level P/I/U/H**
2.211 Characteristics			
The student knows that motion is defined to be the process of changing the place or position of one object with respect to another object (all motion is relative).	K	2	P
The student is able to demonstrate a situation in which two objects are in motion with respect to each other.	P	2, 1i	P
The student knows that kinematics is the study of motion, including speed, velocity, and acceleration.	K	2	
The student knows that the terms referring to position or motion (e.g., down, up, left, right, front, back, etc.) are relative to a fixed reference point or object.	K	2	P
The student is able to describe the kinematics of uniform circular motion.	P	2, 1f	H
The student knows that inertia is defined to be the tendency of an object at rest to remain at rest or an object in motion to continue in motion at the same speed and in the same direction.	K	2	P
The student knows the relationship between kinematics and dynamics: kinematics refers to the "how" of motion (speed, velocity, acceleration); dynamics refers to the "why" of the changes in motion (friction, forces, gravity, etc.).	K	2	U

Science

2 Physical Science
2.2 Physics
2.21 Kinematics - Motion

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.212 Speed			
The student knows that the term speed (non-directional motion) is defined to be the amount of change in position during a given amount of time (rate of motion).	K	2	I
The student is able to measure the speed of objects.	P	1d, 2	P
The student is able to compute the distance, rate (speed) or time when given any two of the three measurements (d = rt).	P	1d	U

2 Physical Science
2.2 Physics
2.21 Kinematics - Motion

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.213 Velocity - Directional Motion			
The student knows that the term velocity (directional motion) is defined to be speed in a given (specified) direction.	K	2	U
The student is able to discriminate between speed and velocity.	P	2	U
The student is able to measure the velocity of moving objects by applying his ability to measure speed and direction.	P	2, 1f	U

2 Physical Science
2.2 Physics
2.21 Kinematics - Motion

Goal	**Knowledge or Process**	**Program Goal to Which this Goal Contributes**	**Appropriate Initial Instructional Level P/I/U/H**
2.214 Acceleration - Rate of Change of Velocity			
The student knows that acceleration is the amount of change in velocity (directional motion) in a given period of time (rate of change in velocity).	K	2	U
The student is able to describe the changes in acceleration of a rolling object as the angle of the inclined plane is changed.	P	2, 1i	U
The student is able to measure the acceleration of objects.	P	2	U
The student is able to graph velocity as a function of time and calculate the rate of change of velocity (acceleration) when given a description of an object changing velocity.	P	2, 1f	H
The student is able to discriminate between a change in motion and acceleration.	P	2	U

Science

2 Physical Science
2.2 Physics
2.22 Dynamics

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.221 Characteristics			
The student knows that dynamics is the study of the causes of the changes in motion, including forces, mechanical advantages, mechanics of fluids, gravity and friction.	K	2	U
The student knows that momentum is defined to be the product of the mass of an object times its velocity ($P = mv$)	K	2	U

Science

2 Physical Science
2.2 Physics
2.22 Dynamics

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.222 Forces			
The student knows that a force is any push or pull.	K	2	P
The student knows that a balanced force results when there is a forward force with an equal force pushing in the opposite direction.	K	2	I
The student knows that the unit of force in the English system is the poundal (32.2 poundals are equivalent to a pound weight).	K	2	U
The student knows that the units of force in the metric system are the dyne and newton (100 dynes equal 1 newton).	K	2	U
The student knows that a greater initial force is needed to start an object moving (overcome inertia) than is required to maintain the motion, e.g., compare the reading on a spring scale attached to an object at the beginning of a lift to the reading when the object is being lifted at a constant velocity.	K	2	I
The student is able to predict what will happen to an object when forces are applied to it.	P	2, 1h	I
The student knows that an unbalanced force results when the sum of all the forces acting upon an object is not zero (not in equilibrium).	K	2	I
The student knows that an object is defined to be in equilibrium if the result of the sum of all the forces acting upon an object is zero.	K	2	U

Science

2 Physical Science
2.2 Physics
2.22 Dynamics

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.222 Forces (Cont.)			
The student knows that force has direction and magnitude (vector quantity).	K	2	U
The student is able to demonstrate the application of forces.	P	2	P
The student knows that there can be many forces acting on an object in many different directions.	K	2	I
The student knows that if a state of equilibrium exists, an object at rest will remain at rest, and an object in motion will maintain a constant velocity.	K	2	I
The student knows that when unbalanced forces act upon an object, the object is accelerated in the direction of the greater force.	K	2	I
The student knows that the acceleration of an object is directly proportional to the magnitude of the unbalanced force and inversely proportional to the mass of the object ($F = ma$).	K	2	H
The student is able to measure forces using the formula $F = ma$; calculate the magnitude of the mass, acceleration, or the force on a object when given the other two values.	P	2	H
The student knows that all forces acting on an object (that is not in equilibrium) can be resolved into one force which has a magnitude and direction (unbalanced force).	K	2	U

Science

2 Physical Science
2.2 Physics
2.22 Dynamics

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.222 Forces (Cont.)			
The student knows that the period of the swing of a pendulum is dependent only on the length of the pendulum and the gravitational force ($T = 2\pi\sqrt{\frac{l}{g}}$).	K	2	H
The student is able to compute the periods of different pendulums and compare their values to find the relationship ($T = 2\pi\sqrt{\frac{l}{g}}$).	P	1d	H
The student knows that the resultant of two or more forces applied to an object can be represented as one force acting at one point on the object.	K	2	H
The student knows that strong pushes or pulls (forces) produce greater changes in motion than weak forces.	K	2	P
The student knows that to do the same amount of work in less time requires more force.	K	2	I
The student is able to select the force required to do a particular task.	P	2	P

2 Physical Science
2.2 Physics
2.22 Dynamics

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.223 Mechanical Advantage			
The student knows the advantage to be gained by selecting a particular class of lever to accomplish a task.	K	2	P
The student is able to decide which of the simple machines is most appropriate to use in order to accomplish a particular task.	P	1g	P
The student knows that the force which is applied to a lever is called the force (F), the object to be moved is called the resistance (R), and the pivot point is called the fulcrum (f).	K	2	P
The student knows that the theoretical mechanical-advantage of a machine (MA) is equal to the distance moved by the force applied to a machine (dF) divided by the distance that the resistance (dR) was moved (by the force).	K	2	U
The student knows that the actual mechanical advantage of a machine is equal to the work done with the machine (R x d) divided by the work done on the machine (F x d).	K	2	U
The student is able to determine the mechanical advantage of a simple machine.	P	1f	I
The student is able to calculate the theoretical and actual mechanical advantage of machines.	P	2	U
The student knows that machines may be used to change one form of energy into another (e.g., gasoline engine - chemical to mechanical).	K	2	I

2 Physical Science
2.2 Physics
2.22 Dynamics

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.223 Mechanical Advantage (Cont.)			
The student knows that the distance an object is moved times its gravitational force (mass) on one end of the lever arm is equal to the force applied at the opposite end, times the distance it moves.	K	2	U
The student knows that in a balanced lever situation, the mass of the object on one end, times its distance from the fulcrum (center point), is equal to the mass of the object on the opposite end, times its distance from the fulcrum (e.g., in a beam balance the distance of the known mass from the fulcrum is varied until a balanced situation is achieved).	K	2	U
The student knows that an equal arm balance compares the known gravitational attraction (weight) of an object to the unknown gravitational attraction of another object on the opposite end.	K	2	U
The student knows that objects may be balanced on opposite sides of a lever arm by changing their distances from the balance point (fulcrum) (e.g., on a teeter-totter the fulcrum and/or the objects may be moved.	K	2	P
The student knows that a lever is a rigid bar on which a force is applied and that turns around a point or axis. The point or axis is called the fulcrum. The principle of the lever is applied in other machines (e.g., wheel and axle, pulley, etc.).	K	2	P

Science

2 Physical Science
2.2 Physics
2.22 Dynamics

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/F
2.223 Mechanical Advantage (Cont.)			
The student knows that man has devised machines to change the amount and/or direction of forces. A machine enables a person to do work with less effort.	K	2	P
The student knows that a simple machine is defined to be a mechanical device used to increase the amount of force, change the direction in which the force operates or change the speed with which the force operates (e.g., lever, wheel, axle, wedge, inclined plane, pulley, etc.).	K	2	P
The student knows that a compound machine is defined to be one that is made up of two or more simple machines (e.g., an egg beater contains a wedge, wheels and axle, lever, etc.).	K	2	P
The student is able to describe and demonstrate the advantages of using simple machines to do work (e.g., lever, inclined plane, wedge, wheel, and axle).	P	2	P
The student is able to decide if a machine provides an advantage in the amount of force that can be exerted or in the speed with which the resistance is moved.	P	1b	I
The student knows that a lever is a simple machine used to move objects.	K	2	P
The student knows the relative position of the force, resistance, and fulcrum as well as the relative directions in which the force and resistance move with respect to each other in each of the three classes of levers.	K	2	P

2 Physical Science
2.2 Physics
2.22 Dynamics

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.223 Mechanical Advantage (Cont.)			
The student knows that the principle of the lever is applied in other simple machines (e.g., pulley, wheel and axle, etc.).	K	2	P
The student knows that the principle of the inclined plane is applied in other simple machines (e.g., wedge, screw, etc.).	K	2	P
The student knows that five classes of simple machines are: inclined plane, lever, wheel and axle, pulley, screw.	K	2	P

Science

2 Physical Science
2.2 Physics
2.22 Dynamics

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.224 Mechanics of Fluids			
The student is able to identify those substances which are classified as fluids.	P	2	P
The student is able to identify the causes of fluid force and pressure.	P	2	I
The student is able to relate fluid forces to floating objects.	P	2	I
The student is able to relate fluid motion to fluid forces.	P	2	H
The student is able to relate fluid motion to fluid pressure.	P	2	U
The student knows that the mechanics of fluids deals with the forces exerted by fluids and the work done by those forces (e.g., vacuum cleaner, windmill, steam turbine).	K	2	U
The student is able to show how fluids can do work (e.g., steam turbine, etc.).	P	2	I

Science

2 Physical Science
2.2 Physics
2.22 Dynamics

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.225 Gravity			
The student knows that gravity is the pull of the earth on an object.	K	2	P
The student knows that the weight of an object is the measurement of the pull that the earth's gravitational field exerts on the object (weight is a measurement of force).	K	2	U
The student is able to measure and compare the weights of different objects.	P	2	P
The student knows that the pull of the earth on an object (due to gravity) is related to the mass of the object and the distance it is from the earth.	K	2	U
The student is able to calculate the force of attraction between two objects due to gravity.	P	2	U
The student knows Newton's Law of Gravitation. (All bodies in the universe attract each other with a force that is directly proportional to the product of their masses and inversely proportional to the square of the distance between their centers.) $F = G \frac{m1m2}{R_2}$	K	2	U
The student is able to predict the effect on weight and mass, changing the position of an object with respect to the center of the earth.	P	2	U
The student is able to measure the force of gravity on an object.	P	2	U

2 Physical Science
2.2 Physics
2.22 Dynamics

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.226 Friction			
The student knows that a rough surface provides more friction than a smooth surface.	K	2	P
The student knows that friction is the force which opposes motion caused by one object's surface moving over another object's surface, or through another substance.	K	2	P
The student is able to measure the force of friction.	P	1d, 2	I

2 Physical Science
2.2 Physics
2.23 Energy - Work

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.231 Characteristics			
The student knows that work is done on an object if a force is applied to the object and any part of the object moves.	K	2	P
The student knows that work done on an object is equal to the force times the distance it moves ($w = fd$) (e.g., in the metric system one newton of force moving an object one meter is equal to one joule of work. In the English system one pound of force moving an object one foot is equal to one foot-pound.)	K	2	U
The student is able to calculate the amount of energy needed to do work.	P	2	U
The student knows some units of work or energy (joules, ergs, calories, etc.).	K	2	H
The student knows that energy is defined to be the ability to do work.	K	2	P
The student knows that there is an exchange of energy when work is done on an object.	K	2	I
The student knows that there are many forms of energy (e.g., heat, light, sound, electrical, physical, stored energy-potential, motion - kinetic).	K	2	P
2.2311 Potential - Stored Energy			
The student knows that potential energy is stored chemical or mechanical energy that can be used to do work because it is in a certain position or chemical condition (e.g., winding a coiled spring stores mechanical energy to run a machine; a log stores energy that can later be released as heat or light).	K	2	P

Science

2 Physical Science
2.2 Physics
2.23 Energy - Work
2.231 Characteristics

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.2311 Potential - Stored Energy (Cont.)			
The student knows that the gravitational energy of one object with respect to another is measured by the difference between their distances from the center of the earth multiplied by the weight of the object farthest from the center of the earth.	K	2	H
The student is able to measure and/or calculate the potential energy of objects.	P	2	U
The student knows that there are many forms of potential energy, energy in a compressed spring, electrical potential energy, and chemical potential energy, etc.).	K	2	U
The student knows that the gravitational potential energy of an object is always measured relative to some other object.	K	2	H
The student knows that the further an object is from the center of the earth, the greater is its gravitational potential energy with respect to the earth.	K	2	U
2.2312 Kinetic - Energy of Motion			
The student knows that kinetic energy is the energy that an object has because of its motion.	K	2	I
The student is able to classify objects as having or not having kinetic energy.	P	2	I

2 Physical Science
2.2 Physics
2.23 Energy - Work
2.231 Characteristics

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.2312 Kinetic - Energy of Motion (Cont.)			
The student knows that kinetic energy of an object is directly proportional to the mass of the object and directly proportional to the square of the speed of the object ($E = \frac{1}{2}mv^2$).	K	2	H
The student is able to calculate the energies of a falling object as the object is falling; calculate the loss of gravitational potential and the gain of kinetic energy.	P	1d	H
The student is able to relate potential energy, kinetic energy, and total energy of a falling object.	P	2	H
The student is able to measure and/or calculate the kinetic energy of objects.	P	2	U

Science

2 Physical Science
2.2 Physics
2.23 Energy - Work

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.232 Equilibrium			
The student knows that when an object is in equilibrium the sum of all forces acting on it is zero (the object may be at rest or moving).	K	2	H
The student is able to identify objects that are in the state of equilibrium.	P	2	H

Science

2 Physical Science
2.2 Physics
2.23 Energy - Work

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.233 Conservation			
The student knows that there may be more than one form of energy or matter resulting from a change of energy (e.g., an incandescent light bulb uses electrical energy to produce both light and heat energy).	K	2	P
The student is able to illustrate conservation of energy.	P	2	H

Science

2 Physical Science
2.2 Physics
2.24 Heat

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.241 Characteristics			
The student knows that the sun is one of the sources of heat.	K	2	P
The student knows that heat is a form of energy.	K	2	P
The student knows that the total heat in an object is equal to the average kinetic energy of the molecules in the object multiplied by the number of molecules contained in the object.	K	2	H
The student is able to measure and/or calculate the total heat energy in an object.	P	1f, 2	H

Science

2 Physical Science
2.2 Physics
2.24 Heat

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.242 Temperature			
The student knows that a thermometer is a device used to measure temperature.	K	2	P
The student knows that there are different models of thermometers.	K	2	I
The student is able to measure the temperature of objects.	P	2	P
The student knows that different substances have different specific kindling temperatures (the lowest temperature at which a substance will burn).	K	2	P
The student knows that objects generally expand when the temperature is raised, and that the amount of expansion (for the same rise in temperature) varies with different substances.	K	2	I
The student knows that temperature is defined to be a measurement of the average kinetic energy of the individual molecules in the object.	K	2	H

Science

2 Physical Science
2.2 Physics
2.24 Heat

Goal	Knowledge or Process	Program Goal to Which this Goal [illegible]	Appropriate Initial Instructional Level P/I/U/H
2.243 Amount - Calorie, Joule			
The student knows that all objects do not contain the same amount of heat even if they are the same temperature.	K	2	U
The student is able to explain why substances which have the same temperature feel different to the touch.	P	1f	U
The student knows that the amount of heat required to raise the temperature of equal masses the same number of degrees varies with the kind of matter.	K	2	U
The student is able to calculate the amount of heat needed to raise the temperature of an object a certain number of degrees.	P	1f, 2	H
The student knows that the units for the measurement of heat are calories, joules, ergs, British Thermal Units.	K	[illegible]	U
The student knows that the British Thermal Unit is the amount of heat needed to raise the temperature of one pount of water one degree Fahrenheit.	K	2	U
The student knows that a Calorie is the amount of heat needed to raise the temperature of one gram of water one degree Celsius (one calorie is equal to 1.85 joules).	K	2	U
The student knows that the thermal capacity of a substance is defined to be the number of calories needed to raise one gram of the substance one degree Celsius.	K	2	U

Science

2 Physical Science
2.2 Physics
2.24 Heat

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.243 Amount - Calorie, Joule			
The student is able to determine the specific heat of various substances.	P	1f, 2	U
The student is able to calculate the amount of heat energy lost or gained by an object.	P	2	H

2 Physical Science
2.2 Physics
2.24 Heat

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.244 Change of State			
The student knows that matter can change phase (from a solid to a liquid - melt; a liquid to a gas - vaporize; a gas to a liquid - condense; a liquid to a solid - solidify; a solid to a gas - sublimation; and from a gas to a solid).	K	2	I
The student knows that the temperature of a liquid in an open container cannot be greater than the boiling point of the liquid.	K	2	I
The student knows that when the boiling point of a liquid in an open container is reached, all additional heat is used in changing its phase to a gas.	P	2	I
The student knows that evaporation and melting absorb heat (cool the surroundings) and that condensation and solidification release heat (warm the surroundings).	K	2	I
The student knows that there is a gain or a loss of energy when the phase of matter is changed even though there is no change in temperature.	K	2	U
The student is able to calculate the heat energy loss or gain as an object changes phase.	P	2	H
The student knows that the heat of fusion of a substance is the number of calories needed to change one gram of the substance from a solid to a liquid without changing the temperature of that substance. (In the reverse process, the same amount of heat is released.)	K	2	H

2 Physical Science
2.2 Physics
2.24 Heat

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.244 Change of State (Cont.)			
The student is able to calculate the heat needed to melt various substances.	P	2	H
The student knows that the heat of vaporization of a substance is the number of calories needed to change one gram of a liquid to one gram of a gas without changing the temperature. (In the reverse process, the same amount of heat is released.)	K	2	H
The student is able to calculate the heat needed to vaporize given amounts of liquids.	P	2	H
The student knows that sublimation is the process where some substances may change directly from a solid to a gas without the liquid phase occurring.	K	2	U
The student knows that heat is generated by pressure and friction.	K	2	P

2 Physical Science
2.2 Physics
2.24 Heat

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.245 Transfer			
The student knows that heat travels through materials.	K	2	P
The student knows that the speed at which heat travels through materials differs with the kinds of material.	K	2	P
The student knows that heat is transferred from one place to another by processes called conduction, convection, and radiation.	K	2	I
The student knows that heat can be transferred by all three processes (convection, conduction, radiation) at once. (Generally, one process is used to a greater degree than others depending upon the nature of the other substances.)	K	2	I
The student knows that conduction is the transfer of heat from one molecule to the molecule next to it.	K	2	I
The student knows that convection is the transfer of heated molecules from one place to another.	K	2	I
The student knows that radiation is the process of the transfer of heat through space.	K	2	I
The student is able to identify the different methods of heat transfer.	P	2	I
The student is able to calculate the heat exchanged between objects (e.g., iron at one temperature is placed in water at a different temperature).	P	2	U

2 Physical Science
2.2 Physics
2.24 Heat

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.245 Transfer (Cont.)			
The student is able to measure the heat exchanged between objects (e.g., a metal at one temperature is placed in water at a different temperature).	P	2	U
The student knows that when there is no change of phase, heat always travels from matter having the higher temperature to the matter having the lower temperature until they are both the same temperature. (The greater the difference in temperature, the greater the rate of transfer.)	K	2	U
The student knows that heat is transferred in solids by conduction. Some substances are better conductors than others (metals are good conductors of heat).	K	2	I
The student knows that metals conduct heat better than other materials.	K	2	P
The student knows that liquids and gases are poor conductors of heat, but are good convectors.	K	2	I
The student is able to explain why different materials are used in the construction of buildings in order to prevent heat loss.	P	1f	I
The student is able to use his knowledge of heat transfer to explain why certain materials are used for cooking utensils.	P	1f	I

Science

2 Physical Science
2.2 Physics
2.25 Light

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.251 Characteristics			
The student knows that light travels in all directions.	K	2	P
The student knows that visible light is that form of energy which affects the optic nerve and causes the sense of sight.	K	2	P
The student knows that an illuminated object is an object which is visible because of the light reflected from it.	K	2	P
The student knows that a luminous object gives off light (sun, firefly, flame, electric light bulb (glowing)).	K	2	P
The student knows that light is a form of energy making up part of the electromagnetic spectrum.	K	2	I

Science

2 Physical Science
2.2 Physics
2.25 Light

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.252 Intensity			
The student knows that the standard candle is a standard unit to measure the amount of light given off (the intensity of light at its source).	K	2	H
The student knows that the foot candle is a common unit for measuring the intensity of light.	K	2	H
The student knows that a foot candle is the intensity of light one foot from a one standard candle light.	K	2	H
The student knows that the intensity of light (from a point source) is inversely proportional to the distance from the source if no light is absorbed in the intervening distance.	K	2	H
The student is able to measure the intensity of light.	P	1d	H
The student knows that the intensity of light depends on the amount of light per unit area.	K	2	H
The student is able to compare the intensities of light.	P	2	H

2 Physical Science
2.2 Physics
2.25 Light

Goal	**Knowledge or Process**	Program Goal to Which this Goal Contributes	**Appropriate Initial Instructional Level P/I/U/H**
2.253 Speed			
The student knows that the supposed ultimate speed of light is the speed of light in a vacuum (300 million meters per second or 186,000 miles per second).	K	2	H
The student is able to relate the different methods of measuring the speed of light.	P	2	H

Science

2 Physical Science
2.2 Physics
2.25 Light

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.254 Reflection, Refraction, Absorption			
The student knows that light is direct or reflected.	K	2	P
The student knows that we see most things by reflected light.	K	2	P
The student knows that a beam of light is a stream of light which is all traveling in approximately the same direction.	K	2	P
The student knows that a pencil of light is a narrow beam of light bounded by parallel lines.	K	2	I
The student knows the meaning of the terms: angle of incidence, angle of reflection, angle of refraction.	K	2	I
The student knows that shadows are created when the path of light is blocked by an opaque object.	K	2	P
The student knows that light which is neither absorbed by nor reflected from an object passes through the object.	K	2	P
The student knows that absorbtion is the process by which the light that is neither reflected nor transmitted by an object is converted to another form of energy within the object.	K	2	I
The student knows that when light passes from one medium to another, the ray striking the surface is called the incident ray and the ray entering the new medium is called the refracted ray.	K	2	H
The student knows the conditions which cause light to be totally reflected from a substance.	K	1d	H

Science

2 Physical Science
2.2 Physics
2.25 Light

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.254 Reflection, Refraction, Absorption (Cont.)			
The student knows that virtual images have no light rays coming from the actual position of the image (e.g., image on a flat mirror).	K	2	H
The student knows that reflection is the phenomena of light bouncing off an object.	K	2	P
The student knows that when light passes into a medium in which it is slowed down, it is bent toward the normal; and when it passes into a medium in which it is speeded up, it is bent away from the normal.	K	2	H
The student is able to predict the behavior of light rays as they strike the surface of matter (e.g., reflect/refract/absorb).	P	2	H
The student knows that mirrors and lenses can form images.	K	2	P
The student knows many uses for lenses and mirrors.	K	2	P
The student knows that the lens in the eye forms a real image on the retina; the image is inverted.	K	2	I
The student knows that those light rays which come directly from a source of light are direct light rays and those rays which are reflected from an object are indirect light rays.	K	2	P
The student knows that many substances may act as prisms to produce a spectrum (e.g., water, oil, etc.).	K	2	P

Science

2 Physical Science
2.2 Physics
2.25 Light

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.254 Reflection, Refraction, Absorption (Cont.)			
The student knows that an image is the phenomena caused by the reflection and refraction of light rays; the image of the object appears to be in a different place from the object.	K	2	P
The student knows that real images are formed by light rays that come from the object (e.g., projection on a screen).	K	2	H
The student is able to diagram formations formed by mirrors and lenses.	P	2	U
The student knows that images may appear to be larger, smaller, or the same size as its object.	K	2	P
The student is able to calculate the sizes and positions of images formed by mirrors and lenses.	P	1d	H
The student knows that transparent materials are defined to be those through which objects can be clearly seen (e.g., window glass).	K	2	P
The student knows that light can pass through translucent materials but not well enough to distinguish objects clearly through them (e.g., frosted glass).	K	2	P
The student knows that opaque materials are defined to be those through which light cannot pass.	K	2	P
The student is able to classify objects according to their ability to transmit light.	P	2	P

Science

2 Physical Science
2.2 Physics
2.25 Light

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.254 Reflection, Refraction, Absorption (Cont.)			
The student knows that light moves in a straight line path.	K	2	P
The student is able to measure the focal length of a lens.	P	2	U
The student knows that a light ray is the narrowest pencil of light it is possible to imagine.	K	2	P
The student knows that refraction is defined to be the process by which light changes direction as it passes through one object to another (e.g., air, water, glass).	K	2	I
The student knows that the angle of reflection is always equal to the angle of incidence.	K	2	H
The student knows that the light ray striking a surface is called the incident ray, the light ray reflected from the surface is called the reflected ray.	K	2	H
The student is able to draw diagrams of light rays being refracted, reflected, or both.	P	2	I
The student knows that the speed of light is not the same in all substances.	K	2	H
The student knows that an imaginary line perpendicular to the point of incidence (the point where the incident ray strikes the surface) is called the normal.	K	2	H

Science

2 Physical Science
2.2 Physics
2.25 Light

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.254 Reflection, Refraction, Absorption (Cont.)			
The student knows that the sine of the angle of incidence divided by the sine of the angle of refraction is equal to the index of refraction of the medium into which the light is passing.	K	2	H
The student knows that the index of refraction is the ratio of speed of light in a vacuum (300 million meters per second or 186,000 miles per second) to the speed of light in another medium.	K	2	H
The student is able to calculate the index of refraction of different substances.	P	1f, 2	H

Science

2 Physical Science
2.2 Physics
2.25 Light

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.255 Wave Phenomena - Spectra - Color			
The student knows that white light is a combination of all colors.	K	2	P
The student knows that the colors of light are properties of their frequencies. Red light is the lowest frequency and violet light is the highest frequency that the eye can detect.	K	2	I
The student is able to relate the color of a light to its frequency.	P	2	U
The student knows that the higher frequencies of light are refracted more than lower frequencies.	K	2	I
The student knows that light has transverse wave properties.	K	2	I
The student is able to measure the wave length of light.	P	1m, 1f	H
The student knows that some properties of light can be explained only by wave phenomena.	K	2	U
The student knows that light energy comes in discreet quantities (photon quantum) which is dependent on the frequency of the light. The higher the frequency, the greater the energy of the photon. $E = hf$, h = Planck's constant, f = frequency.	K	2	H
The student is able to calculate the energy of different photons.	P	1d	H
The student is able to relate the frequency of light to its energy.	P	2	H

Science

2 Physical Science
2.2 Physics
2.26 Sound

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.261 Characteristics			
The student knows that sound is caused by a vibrating object.	K	2	P
The student knows that sound is a longitudinal wave disturbance traveling through a medium. (Sound is caused by a vibrating object.)	K	2	I
The student is able to demonstrate that sound is caused by vibrating objects.	P	2	P

Science

2 Physical Science
2.2 Physics
2.26 Sound

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.262 Amplitude - Loudness			
The student knows that the ear is an organ of the body that detects sound.	K	2	P
The student knows that sound can be detected by a variety of methods.	K	2	P
The student knows that loudness (amplitude) of sound varies with the energy of the refractions and compressions in the medium through which the sound travels.	K	2	H
The student is able to measure the amplitude of sound.	P	1m, 1f	H
The student knows that the amount of energy of sound waves absorbed by the medium in which they travel is proportional to the distance traveled in the medium (e.g., the further they travel the weaker they become).	K	2	H
The student knows that the louder the sound, the greater the distance his ear drum vibrates back and forth as it detects the sound.	K	2	I

Science

2 Physical Science
2.2 Physics
2.26 Sound

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.263 Wave Phenomena - Frequency - Pitch			
The student knows that as length of a vibrating string is increased, with other factors remaining constant, the frequency of the sound decreases.	K	2	P
The student knows that as the tension (tightness) of a vibrating string is increased, the frequency (pitch) of the sound produced increases, provided other factors remain constant.	K	2	P
The student knows that the greater the mass of a vibrating string the lower is the frequency of the sound produced by it, if other factors remain constant.	K	2	P
The student knows that the pitch of a sound is dependent on the frequency of the vibrations; the higher the frequency the higher the pitch.	K	2	P
The student is able to control the frequency of the sound produced by a vibrating string (e.g., shorten or tighten the string).	P	1h	P
The student is able to discriminate between loudness and pitch.	P	1f, 2	I
The student knows that audible sound has a frequency of between 16 and 20,000 cycles per second.	K	2	U
The student knows that all persons cannot hear the same frequencies of sound.	K	2	I
The student knows that some animals can detect frequencies of sound that humans cannot.	K	2	P

Science

2 Physical Science
2.2 Physics
2.26 Sound

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.263 Wave Phenomena - Frequency - Pitch (Cont.)			
The student knows that sound waves may reinforce or interfere with other sound waves.	K	2	U
The student is able to demonstrate interference of sound waves.	P	2	U
The student knows that the Doppler effect is caused by the source of a sound moving toward or away from the detecting device.	K	2	U
The student knows that sound waves in water may be used to detect the depth of the water.	K	2	U
The student knows that two sound sources of different frequencies may produce a sound having a third frequency (beat frequency).	K	2	U
The student knows that musical tones and noises contain sounds of more than one frequency.	K	2	I
The student knows that the composition of musical tones is dependent on the shape and the material of which the instrument is composed (e.g., musical instruments produce characteristic sounds).	K	2	I
The student knows that sound waves move through substances (solids, liquids, gases).	K	2	P

Science

2 Physical Science
2.2 Physics
2.26 Sound

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.264 Speed			
The student knows that sound travels faster through certain media (e.g., metals, woods) than through other media (air).	K	2	P
The student knows that the speed of sound is dependent on the medium through which the sound is traveling and the temperature of that medium.	K	2	P
The student is able to calculate the speed of sound through different media.	P	2	H
The student knows that the speed of sound in the air increases as the temperature rises.	K	2	I
The student knows the speed of sound in air is approximately 1100 feet per second. (Sound travels (in air) 1090 feet per second at 0^{o} C. and 2 feet per second faster for every Celcius degree rise in temperature.)	K	2	I
The student knows the principle of the Doppler effect. (The Doppler effect is caused as the energy waves (light or sound) produced by a moving object decrease and increase in length. As the object approaches an observer, the waves are shortened and as it recedes the waves are lengthened.)	K	2	I
The student is able to demonstrate the "Doppler Effect."	P	2, 1i	U

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Science

2 Physical Science
2.2 Physics
2.26 Sound

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.265 Reflection, Absorption, Refraction			
The student knows that sound is better absorbed in certain textures of substances (soft, irregular) than in other textures (smooth).	K	2	P
The student knows that sound is better reflected from certain surface textures (hard, smooth) than from others (soft, irregular)	K	2	P
The student is able to associate the acoustical effects of sound with the nature of the surroundings (e.g., a room, an open field, a forest, etc.).	P	2, 1f	I
The student knows that sound can be reflected, absorbed, and refracted.	K	2	P
The student knows that reflected sound can reinforce or interfere with the original sound.	K	2	I
The student knows that echoes are caused by sound striking an object and being reflected back.	K	2	P
The student knows that the absorption of sound is the process by which that sound that is neither reflected nor transmitted is converted into another form of energy within the object.	K	2	I
The student knows that sound can be changed by absorption (muffled, deadened) and by reflection (echoed).	K	2	P

Science

2 Physical Science
2.2 Physics
2.27 Electricity

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.271 Characteristics			
The student knows (from the structure of matter) that all matter is made up of electrons, protons, and neutrons. These are the smallest stable particles.	K	2	I
The student knows that electrical force fields surround electrically charged particles.	K	2	I
The student knows that like charges repel each other and unlike charges attract each other; neutral charges exert no electrical force on each other.	K	2	I
The student knows that electrical charges will move more easily in some solid materials than in others; this property is due to the force with which the electrons are bound to the nucleus of the atoms.	K	2	U
The student knows that electrical conductance is a measure of the ease with which electrical charges move in a material and that electrical resistance is the measurement of the opposition to movement of electrical charges in the material. The greater the electrical conductivity the less the electrical resistance and vice versa.	K	2	H
The student knows that the unit of electrical resistance is the ohm and the unit of electrical conductance is the mho (they are reciprocals of each other).	K	2	H

Science

2 Physical Science
2.2 Physics
2.27 Electricity

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.272 Static			
The student knows that an electrically charged object is one that has an unequal number of positive and negative electrical charges.	K	2	U
The student is able to explain why a charged object can attract a piece of paper or other materials.	P	2, 1b	P
The student knows that objects may be charged by a number of different methods: friction, conduction, induction, etc.	K	2	U
The student is able to demonstrate that like charges repel and unlike charges attract.	P	2	I
The student knows that the force between two electrically charged objects is directly proportional to the product of the number of charges on each object and inversely proportional to the square of the distance between them.	K	2	H
The student is able to compute the force between two charged objects.	P	2	H
The student knows that an object will only retain an electrical charge if it is insulated from all other objects. (Insulation is a material which tends to prevent the transfer of electrical charges.)	K	2	U
The student is able to explain why a person receives an electrical shock when he touches a metal part of the car after sliding across the seat.	P	2, 1b	P

2 Physical Science
2.2 Physics
2.27 Electricity

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.272 Static (Cont.)			
The student knows that static electricity causes lightning storms.	K	2	P
The student knows that the amount of electrical charge is the difference between the number of positive and negative electrical charges on the object. The unit of charge is the coulomb.	K	2	H
The student knows that electrical charges always tend to neutralize themselves.	K	2	U

2 Physical Science
2.2 Physics
2.27 Electricity

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.273 Current			
The student knows that an electrical current is defined to be the movement of an electrical charge between the two objects connected by a conductor.	K	2	I
The student knows that electrical potential energy difference is measured in volts. To separate electrical charges work must be done on the charges. This work represents the electrical potential energy difference between the objects.	K	2	I
The student knows that the ampere is a measurement of the amount of current and is a specific number of charges flowing past a given point each second.	K	2	U
The student is able to detect and measure electrical current.	P	2	U
The student knows that the current in a medium is directly proportional to the potential difference in volts (V) and inversely proportional to the resistance (R) measured in ohms. $I = \frac{V}{R}$ Ohm's Law	K	2	U
The student is able to calculate one of the variables in Ohm's law when given the other two variables.	P	2, 1b	H

Science

2 Physical Science
2.2 Physics
2.27 Electricity

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.274 Magnetism			
The student knows that magnets have a magnetic field in and around them.	K	2	P
The student knows that the earth has a magnetic field.	K	2	P
The student knows that like magnetic poles repel and unlike magnetic poles attract.	K	2	P
The student is able to prove the existence of the magnetic field around a magnet.	P	2	I
The student knows that magnets have two poles; a north seeking pole and a south seeking pole (e.g., the north seeking pole of a magnet is the pole which will point toward the Earth's north magnetic pole if the magnet is suspended from a string at its center).	K	2	P
The student knows that the conventional method of viewing the magnetic field is that the lines of force travel within the magnet from the south seeking pole to the north seeking pole and outside the magnet from the north seeking pole to the south seeking pole.	K	2	P
The student is able to determine the nature of the poles of a magnet.	P	2	I
The student knows that there is a magnetic field around any electric current.	K	2	I
The student knows that an electromagnet can be made by winding a wire around a ferromagnetic material. The strength of the electromagnet is a product of the current and number of turns of wire - ampere turns.	K	2	U

2 Physical Science
2.2 Physics
2.27 Electricity

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.274 Magnetism (Cont.)			
The student is able to construct a motor and explain how it works using his knowledge of magnetic fields.	P	2, 1b	I
The student knows that those objects which are magnetized are called magnets. Ferromagnetic materials can be magnetized (made to attract other ferromagnetic material) by aligning the electron spin.	K	2	I

Science

2 Physical Science
2.2 Physics
2.27 Electricity

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.275 Electrical Circuitry			
The student knows that an electrical potential difference (voltage) can be caused by: friction (static), chemical reaction (batteries), conductors cutting magnetic lines of force (generators), heat (thermocouples), light (photoelectric cells).	K	2	I
The student knows the difference between direct current and alternating current.	K	2	P
The student is able to identify applications for both alternating and direct current and describe why each is appropriate for its task.	P	2, 1b	I
The student knows that a switch is a device used to break or complete a circuit to either let current flow or stop current flow in a circuit.	K	2	P
The student knows that a fuse is a safety device used in a circuit to prevent too much heat from being generated in the electrical circuit.	K	2	P
The student knows that an electrical circuit consists of a path through which electrical charges can move between the points of potential difference.	K	2	I
The student knows that in order for electrical current to flow in a circuit there must be an electrical potential difference (voltage) between two points.	K	2	I

2 Physical Science
2.2 Physics
2.27 Electricity

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.275 Electrical Circuitry (Cont.)			
The student knows that the total amount of impedance (ohm - total opposition to current flow due to resistance and reactance) divided into the potential difference (volts) will give the total current (amps) in the circuit.	K	2	H
The student is able to design an electrical circuit and predict the amount and direction of current flow in it.	P	1f, 2	H
The student knows that the heat energy generated in a circuit is directly proportional to the square of the current and directly proportional to the electrical resistance.	K	2	H
The student knows that an inductance coil in a circuit opposes change in current.	K	2	H
The student knows that a capacitor opposes the flow of direct current in a circuit.	K	2	H

Science

2 Physical Science
2.2 Physics
2.28 Wave Phenomena

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.281 Characteristics			
The student knows that a wave is defined to be a disturbance that passes through or over a given medium that causes no permanent change in the medium or in its position.	K	2	H
The student knows that waves are a phenomena by which energy may be transported from one place to another.	K	2	H
The student knows that periodic waves are defined to be a series of waves going past a given point at regular time intervals.	K	2	H
The student knows that the period of a wave is the length of time it takes one complete wave to pass a given point.	K	2	H
The student knows that the frequency of a wave is defined to be the number of complete waves going past a given point in a given period of time.	K	2	H
The student knows that the wave length is defined to be the distance between a given point on one wave to the like point on an adjacent wave.	K	2	H
The student knows that a longitudinal wave is defined to be one in which the disturbance is vibrating in the same direction as the direction the wave is moving.	K	2	H
The student knows that a transverse wave is defined to be one in which the disturbance is vibrating at right angles to the direction the wave is traveling.	K	2	H

Science

2 Physical Science
2.2 Physics
2.28 Wave Phenomena

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.281 Characteristics (Cont.)			
The student knows that the speed of a wave is dependent upon the type of wave and the medium in which it is traveling.	K	2	H
The student knows that waves may be reflected, transmitted and absorbed.	K	2	H
The student knows that waves may be refracted and diffracted.	K	2	U
The student knows that the amplitude of a wave is the strength of the wave - the amount of disturbance per wave. In transverse waves the amplitude is the vertical distance between crest and trough; in longitudinal waves the amplitude is the difference between the amount of compression and rarefaction.	K	2	H
The student knows that in periodic wave motion the speed of the wave is a product of the frequency and wave length.	K	2	H
The student knows that two waves may reinforce or interfere with each other.	K	2	H
The student is able to calculate the wave length, frequency, or speed of a wave when given the other two components.	P	2	H
The student is able to calculate the wave length of a wave from its interference pattern.	P	1d	H

Science

2 Physical Science
2.2 Physics
2.28 Wave Phenomena

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.281 Characteristics (Cont.)			
The student knows that two point sources of periodic waves of the same frequency produce waves which can produce an interference pattern. The points where the waves are cancelled are called nodes. The lines formed by nodes are called nodal lines.	K	2	H
The student is able to identify wave properties.	P	1f, 2	I

Science

2 Physical Science
2.2 Physics
2.28 Wave Phenomena

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.282 Water			
The student knows that when the depth of water is less than the wave length, the water wave travels slower in the shallower water.	K	2	H
The student is able to measure the speed of water waves.	P	2	H
The student is able to measure the frequency of water waves.	P	2	H
The student is able to measure the wave lengths of water waves.	P	2	U

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2 Physical Science
2.3 Earth and Space Science
2.31 Solar System

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.311 Theories of Origin			
The student knows the basic facts and assumptions underlying each of the following theories concerning the origin of the solar system: "Big Bang," "Pulsating," Steady State," "Planetesimal," "Exploding Star," Nebular, Tidal, Collision and Gravitational theories.	K	2	I
The student is able to secure scientific information that tends to validate or refute the following theories of the origin of the solar system: "Big Bang," "Pulsating," "Steady State," "Planetesimal," "Exploding Star," Nebular, Tidal, Collision, and Gravitational.	P	4, 1f, 1g	U
The student knows the part that mythology has played in man's attempt to explain his location in the universe as related to observed motion and viewed objects (e.g., constellations and planets).	K	2	U

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2 Physical Science
2.3 Earth and Space Science
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Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.313 Sun			
The student knows the relative positions of the earth, moon, and sun during a solar eclipse.	K	2	P
The student is able to illustrate the relative positions of the earth, moon, and sun during a solar eclipse.	P	2	I
The student knows the movements and tilt of the earth in relationship to the sun and how this affects seasons in the northern or southern hemispheres, length of year, length of day and night, length and directions of shadows, time and direction of sunrise and sunset, angle of insolation, temperatures, and climate.	K	2	I
The student knows how the sun can be used to determine direction and the time of day.	K	2	I
The student is able to use the sun to find direction and to find the time of day.	P	1m	I
The student knows that the sun, sun spots, and solar eclipses should be viewed only as a reflected or projected image; that permanent damage to the eyes can result from viewing the sun directly.	K	2	P
The student is able to demonstrate proper safety precautions that should be taken when viewing the sun, sun spots, and solar eclipses (e.g., the viewing of projected or reflected images rather than the direct image).	P	1f, 1g	I

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Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.312 Dating Methods			
The student knows the substance of the following basic procedures (with their instruments, assumptions, and limitations) of dating the earth, solar system and universe used by scientists now or in the past: fossil dating, rates of erosion, rates of sedimentation, salinity of the oceans, radioactive dating, study of meteorites, and astronomical measurements.	K	2	U

2 Physical Science
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Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.313 Sun (Cont.)			
The student knows that in the nuclear reactions within the sun's interior, mass changes into energy ($E=mc^2$). The energy comes to the surface of the sun and is radiated through space primarily as ultraviolet, visible light, and infrared rays. In addition other radiation is emitted (electro-magnetic spectrum).	K	2	H
The student knows that the comparative amount of energy from the sun that each planet receives is inversely proportional to the square of the distance the planet is from the sun and is proportional to the size of the planet.	K	2	U
The student knows that the fusion of hydrogen to helium in a hydrogen bomb is a thermonuclear reaction comparable to the nuclear reaction in our sun and other stars.	K	2	U
The student knows that sunspots are darker areas on the sun; they are darker because they are cooler than the rest of the sun's visible photosphere.	K	2	I
The student knows that sunspots are believed to be cyclonic-like storms on the sun in which gases rise to the surface of the photosphere, expand and cool and therefore appear darker.	K	2	U
The student knows that scientists are investigating the theory that earth weather conditions are systematically related to the observed cyclic behavior of sunspots.	K	2	U

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Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.313 Sun (Cont.)			
The student knows the following terms and their meanings in relationship to the solar system: sun, planets, moon, satellites, comets, shooting stars, meteors, meteorites, asteroids.	K	2	I
The student knows that at the North Pole due to the 23½° tilt of the earth, during a six months period (approximately March 22 - September 22) the sun always appears above the horizon. During the six months period (approximately September 23 - March 21), the sun never appears above the horizon. At the South Pole the same phenomenon occurs at the opposite time periods.	K	2	U
The student knows that due to the 23½° tilt of the earth at no time does the sun appear more than 23½° above the horizon at the poles. When the sun appears 23½° above the horizon it is equinox.	K	2	U
The student knows that the earth's main source of heat and light is the sun.	K	2	P
The student knows that there are three designated layers of the sun: photosphere (visible gaseous surface of the sun), chromosphere (reddish layer above photosphere), and corona (outermost layer).	K	2	U
The student knows that the vast amount of energy in the universe comes from the sun and other stars as a result of nuclear reactions on these stars. These nuclear reactions are thermonuclear fusion--basically the change of hydrogen to helium.	K	2	U

2 Physical Science
2.3 Earth and Space Science
2.31 Solar System

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.313 Sun (Cont.)			
The student knows that the sun spots close to the equator complete their rotation more quickly than those closer to the poles. (The rotational velocity of the sun's surface is greater at the sun's equator and the sun, being gaseous, does not rotate as a solid.)	K	2	U
The student is able to determine the relative rotational velocity of sunspots located near the sun's equator as compared to those located nearer to the poles.	P	2, 1d, 1f, 1a	U
The student knows that flares are associated with sunspots. These flares are emissions of hydrogen gas which send out X rays, charged electrons and protons which cause magnetic storms. These magnetic storms cause the auroras and disrupt the ionosphere which in turn disrupts radio communication.	K	2	U
The student knows that the sun is an average star with respect to size, mass, and temperature.	K	2	I
The student knows that the term "solar system" is derived from the term "sun" system and is a system of planets revolving around the sun which is a star.	K	2	P
The student knows that the sun, according to present theory on the evolution of stars, was formed by the contraction of particles under the influence of gravity, causing it to heat up until a thermonuclear reaction started.	K	2	U

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2.3 Earth and Space Science
2.31 Solar System

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.313 Sun (Cont.)			
The student knows that the sun, according to present theory on the evolution of stars, will flare up or explode into a nova, eventually collapse into a white dwarf, and die out.	K	2	U
The student is able to collect data that tends to validate or refute the theory that stars were formed by the contraction of particles by gravity, which heated them up and started the thermonuclear reaction.	P	4	H
The student is able to evaluate data that tends to validate or refute the theory that the sun will eventually flare up or explode into a nova and then collapse into a white dwarf and die out.	P	4	H
The student knows that there are methods, in experimental development, of capturing the sun's energy for use as heat and power--parabolic mirrors, glass (greenhouse effect), solar cells (silicon-dioxide and boron wafers).	K	2	U

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2 Physical Science
2.3 Earth and Space Science
2.31 Solar System
2.314 Planets

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3141 Earth			
The student knows his frame of reference (position) in the universe in relationship to: planets (earth), stars (the sun), and galaxies (the Milky Way).	K	2	U
The student is able to describe the universe in terms of his frame of reference and the relative positions of the following: stars, planets, solar system, and galaxies.	P	1b, 1f	U
The student knows that the earth is basically a sphere 8000 miles in diameter.	K	2	P
The student knows that the earth is a slightly oblate spheroid about 25,000 miles in circumference with a bulging of about 27 miles at the equator and a smaller bulge in the southern hemisphere and many small "bumps" called geodes.	K	2	U
The student knows the historical evidence that revealed the shape of the earth (e.g., ships appearing to sink as they travel toward the horizon, the shape of the earth's shadow during a lunar eclipse, etc.).	K	2	P
The student knows how latitudes are found based on sextant readings.	K	2	U
The student is able to use a sextant to find latitude.	P	1m	U
The student knows that the planets and moons (satellites) reflect light from the sun.	K	2	P

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2.3 Earth and Space Science
2.31 Solar System
2.314 Planets

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3141 Earth (Cont.)			
The student knows that the earth is at a distance from the sun where the temperature range (0^{o} - 100^{o} C.) is such that water is found naturally in its three states (solid, liquid, and gas).	K	2	I
The student knows the following terms and their meanings in relationship to seasons due to tilt of the earth and its revolution around the sun: vernal equinox, autumnal equinox, summer solstice, winter solstice, northern hemisphere, southern hemisphere.	K	2	I
The student is able to relate the tilt of the earth to the position of the earth in its revolution around the sun at the following times: vernal equinox, autumnal equinox, summer solstice, and winter solstice.	P	2, 1d, 1f, 1i	U
The student knows the following terms and their meanings in relationship to seasons due to the tilt of the earth and its revolution around the sun: summer, fall, winter, spring.	K	2	P
The student knows that Keppler's first law states that the orbits of the planets around the sun are ellipses with the sun occupying one focus of the ellipse.	K	2	U
The student knows that Keppler's second law states that the planet in orbit around the sun, when closer to the sun moves faster and when further from the sun moves more slowly. Therefore, its radius vector sweeps over equal areas in equal time.	K	2	U

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2 Physical Science
2.3 Earth and Space Science
2.31 Solar System
2.314 Planets

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3141 Earth (Cont.)			
The student knows that the Van Allen Belts are two rings of radiation around the earth which are shaped by the earth's magnetic field. These belts trap particles from the sun.	K	2	U
2.3142 Other			
The student knows that scaling can be used to find distance if you can measure two angles and a distance (e.g., distance between two planets).	K	2	H
The student knows some general characteristics of each of the nine planets (e.g., length of days and years, chemical composition of the atmospheres, number of moons, sizes, distances from the sun).	K	2	I
The student knows how past and future positions of planets or moons are found. The student is able to gather data in order to predict the future position of a planet or the moon.	P	1m	U
The student knows the following principal characteristics: Venus--cloud covered, phases, "earth's twin" in that it is closest to earth and nearest earth's size; Mercury--phases, hottest, closest to the sun; Mars--apparent seasonal changes, color, polar caps, canals; Jupiter--size, bands of color, "red spot"; Saturn--rings; Uranus--rotates in a different direction than others, tilt 98°; Pluto--farthest from sun, object is more eclipsed and not in same plane as other planets.	K	2	I

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2 Physical Science
2.3 Earth and Space Science
2.31 Solar System
2.314 Planets

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3142 Other (Cont.)			
The student knows the name and approximate location of those planets visible to the naked eye.	K	2	U
The student is able to locate planets that are visible to the naked eye.	P	1m	U
The student knows that there are primary requirements existing on earth that are necessary for life to exist as we know it (e.g., oxygen, temperature, and pressure within certain ranges).	K	2	I
The student is able to form a hypotheses as to life as we know it existing on other planets using his knowledge of conditions necessary for life (oxygen, water, certain temperature, and pressure ranges, etc.).	P	1c	I
The student knows that the absorption spectrum that we receive from the planets by using the spectroscope is used to find the probable composition of the atmosphere of other planets (Kirchhoff's fourth law).	K	2	H
The student knows that the existence of the planet Neptune was predicted before it was discovered because of orbital changes of Uranus (gravitational effects). Pluto's existence was predicted because of Neptune's orbit.	K	2	U

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2 Physical Science
2.3 Earth and Space Science
2.31 Solar System
2.315 Moons/Satellites

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3151 Moons			
The student knows the relative positions of the earth, moon, and sun during a lunar eclipse.	K	2	P
The student is able to illustrate the relative positions of the earth, moon, and sun during a lunar eclipse.	P	1d, 1f	I
The student knows that the tide is the periodic rise and fall of the ocean level due to the gravitational pull of the moon and sun on the earth.	K	2	P
The student knows what causes the phases of the moon in terms of the relative positions of the earth, moon, and sun.	K	2	I
The student is able to demonstrate, through the use of appropriate visual media, the causes of the phases of the moon in terms of the relative positions of the moon, earth, and sun.	P	1d, 1f, 1i	U
The student knows the theories of the origin of the moon: that it broke away from the earth; that it originated the same way as the earth.	K	2	I
The student is able to secure scientific data being collected on the moon and moon rocks that tend to validate or support the theories that the moon broke away from the earth or that it originated the same way as the earth.	P	4	U
The student knows how data being collected from the moon exploration are being used to compare the moon and earth as to age, structure, crystal composition and changes, and theories as to its origin.	K	2	U

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2 Physical Science
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2.31 Solar System
2.315 Moons/Satellites

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3151 Moons (Cont.)			
The student is able to secure scientific data being collected on the moon and moon rocks that compare the moon and earth as to age, structure, crystal composition and changes, and theories as to origin.	P	4	H
The student knows that we see the phases of the moon (new, crescent, quarter, half, full) due to how much of the moon is visible from earth.	K	2	P
The student knows that the earth has one natural satellite, the moon.	K	2	P
The student knows that the moon rotates once as it revolves around the earth once, thus the same side of the moon always faces the earth.	K	2	I
The student knows that the moon doesn't have an atmosphere because it does not have enough gravitational pull to hold an atmosphere. Without an atmosphere there is no weather, no sound, no decomposition (oxidation) and rapid temperature changes.	K	2	I
The student knows that the main topographical features on the moon are craters, mares, faults, mountain ranges, rilles, rays, crater walls.	K	2	I
The student knows that the moon is about 1/4 the diameter, 1/64 the volume, 1/80 the mass, and has 1/6 the pull of gravity as compared to the earth.	K	2	I

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2 Physical Science
2.3 Earth and Space Science
2.31 Solar System
2.315 Moons/Satellites

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3152 Man-made Satellites			
The student knows the functions of man-made satellites (communication, weather forecasting, reconnaissance, outer space exploration, gathering data on the atmosphere, measuring gravitational pull, and determining the size and shape of the earth, etc.).	K	2	P
The student is able to describe how man-made satellites are used for communication, weather forecasting, reconnaissance, outer space exploration gathering data on the atmosphere, measuring gravitational pull, and determining the size and shape of the earth.	P	1f	U

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2 Physical Science
2.3 Earth and Space Science
2.31 Solar System

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.316 Comets			
The student knows that a comet's orbit is much more elliptical than a planet's orbit.	K	2	I
The student knows the theories of the origins of meteors, comets, and asteroids. (Meteors--left over from comet's or asteroid's tail; remnants left in space; fragments of planets that broke up. Comets--formed beyond Neptune; remnants too weak gravitationally to condense to form solid spheres, but strong enough to stay in system. Asteroids--come from exploding planet; planet in formation; planet that didn't condense.	K	2, 4	U
The student knows that as a comet approaches the sun the solar energy or "solar wind" vaporizes some of the comet which forms the tail. This tail, being very tenuous, is forced out from the sun by this solar energy or "wind."	K	2	U

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2.317 Meteors/Asteroids

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3171 Meteors			
The student knows that there are three kinds of meteorites: Metal--basically of iron and nickel composition; Stone--basically iron, magnesium, silicate minerals; Stone-Metal--iron, nickel, and silicates.	K	2	U
2.3172 Asteroids			
The student knows that asteroids are thought to be either materials that didn't have enough gravitational pull to form a planet or the remains of a planet that broke up after formation.	K	2	U

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Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.318 Dynamics (force, motion and time)			
The student knows that the earth and other planets revolve around the sun.	K	2	P
The student knows what causes day and night on the earth in terms of the earth's rotation.	K	2	P
The student knows the difference between solar time, sidereal time, and man-made time units.	K	2	U
The student is able to determine sidereal time.	P	1m	U
The student knows that the world's time zones are based on the position of the earth relative to the sun. There is an hour change in time about every 15 degree change in longitude from 0 degree longitude at Greenwich, England.	K	2	I
The student is able to determine longitude from time zone differences.	P	1m	U
The student knows that the law of universal gravitation states that matter attracts matter in direct proportion to their masses and inversely proportional to the square of the distance between them. Whether this attraction is a real property with which matter is endowed or merely an apparent effect, it is used to help explain celestial orbital movements (i.e., Centripetal force toward the center).	K	2	U

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Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.318 Dynamics (force, motion and time) (Cont.)			
The student knows that celestial objects moving in orbits are acted upon by a force called inertia (the tendency to continue moving in a straight line unless acted upon by an outside force) which would, if it were not for the force of gravity, cause the object to escape from its orbit out in a straight line due to the object's acceleration. The inertial force is directly proportional to mass and acceleration. ($F=m \cdot a$)	K	2	U
The student knows that there are two forces, inertial and gravitational, that keep orbiting objects such as moons, satellites, and planets in their orbits.	K	2	I
The student knows that the earth measurements are expressed in degrees latitude in the north-south direction and in degrees longitude in the east-west direction. The hourly time zone changes are based on 15 degree changes in longitude.	K	2	P
The student is able to translate given time from one time zone to another.	P	2	I
The student knows that the earth in its orbit around the sun reaches its closest point (perigee) in January and gets further from the sun (apogee) in June.	K	2	I
The student knows that Keppler's third law states that the square of the period's revolution is proportional to the cube of the mean distance to the sun. If the period of revolution (P) is in years and distance (A) is in astronomical units, $P^2 = A^3$.	K	2	U

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Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.318 Dynamics (force, motion and time) (Cont.)			
The student knows that Newton refined Keppler's third law, $P^2 = A^3$ (when P (period) of revolution is in years and A (distance) is in astronomical units) to include mass-- $(M_1 + M_2)\ P^2 = A^3$. He based this refinement on the universal law of gravitation and it is used to find mass in binary systems.	K	2	H
The student knows that the earth does not revolve around the sun in exactly one calendar year--365 days. Therefore, we periodically have leap year--an extra day which falls in February every fourth year.	K	2	I
The student knows that the Foucault pendulum is used to show the earth rotates; also, its direction of rotation and rate of rotation at a given latitude.	K	2	U
The student knows the historical development of calendars (Julian and Gregorian) including the origin of the names of the months and days of the weeks and the part that the moon played in this development.	K	2	U

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Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.319 Space Travel			
The student knows that rocket engines are the only present means of propulsion in outer space travel.	K	2	P
The student knows that space travel equipment has to be designed to take into account the following conditions: lack of atmosphere, variation in gravitational pull and weightlessness, extremes in temperature and pressure, hazards from radiation and meteors, limited space in which to work, need to store food and water, and need to eliminate waste materials.	K	2	I
The student knows that the velocity required to keep an object in orbit around the earth is between 17,000 and 24,000 miles per hour, that the velocity required for an object to escape the earth's gravitational field is over 24,000 miles per hour, and that these speeds are attained by using multistage rockets.	K	2	I
The student knows the historical development of the space program in the United States (e.g., manned vs. unmanned, thrust capabilities, size of pay loads, duration of flight, life support systems, lives of astronauts, etc.).	K	2, 3	U

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2 Physical Science
2.3 Earth and Space Science
2.32 Stellar System

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.321 Theories of Origin			
The student knows the basic facts and assumptions underlying each of the following theories of the origin of the universe: "Big Bang," "Pulsating," and "Steady State" theories.	K	2	I
The student is able to secure scientific information that tends to validate or refute the following theories of the origin of the universe: "Big Bang," "Pulsating," and "Steady State" theories.	P	1f, 1g, 4	U

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Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.322 Dating The student knows that it is possible to determine the "date" of origin of stellar systems through measurements of the radiation which we receive from them.	K	2	U

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Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.323 Galaxies			
The student knows that the major characteristics of a galaxy are: they are large in size (consist of many stars each of which is a large distance away from its neighbor), they are far away from us, they are large in number, and they are moving.	K	2	U
The student knows that there are four main kinds of galaxies based upon their observed shape: barred, irregular, spiral, and elliptical.	K	2	I
The student knows that the Milky Way galaxy is the galaxy that he lives in (the Solar System is located in this galaxy) and that it is probably (by shape) a spiral galaxy.	K	2	U
The student knows the approximate location of the Solar System in the Milky Way galaxy.	K	2, 1b, 1f	U
The student is able to show the approximate location of the Solar System in the Milky Way galaxy and give supporting data to justify this location.	P	1b, 1f	U
The student knows that according to Newtonian physics, galactic systems are held together by gravity.	K	2	U

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Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.324 Constellations			
The student knows that a constellation is a group of stars that appear, from man's viewing position, to form a pattern in the sky.	K	2	P
The student knows the location of selected constellations and their significance as related to direction and time.	K	2	I
The student is able to use his knowledge of constellations to locate selected constellations visible from his area during the different seasons.	P	1b, 1f	U
The student knows that the apparent change in position and rate of motion of constellations are due to the motions of the earth.	K	2	U

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Goal	**Knowledge or Process**	**Program Goal to Which this Goal Contributes**	**Appropriate Initial Instructional Level P/I/U/H**
2.325 Nebulae The student knows that the main characteristics of a nebula are: usually irregular in shape (cloudlike), consists of dust or gas, large in size, and far away.	K	2	I

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Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.326 Stars			
The student knows the major characteristics (energy production, motion, size, distance) of different kinds of stars (i.e., quasors, pulsars, binaries, neutron stars--white dwarfs, red giants, nova, and supernova.	K	2	I
The student knows that in most stars (main sequence stars on the H-R diagram) the greater their size and mass--the greater the absolute brightness, the higher the temperature, the more blue-white the color, and the shorter the life span.	K	2	U
The student knows that the apparent brightness of a star is dependent upon its absolute brightness and its distance away from us. (Directly proportional to the absolute brightness and inversely proportional to the square of the distance.)	K	2	H
The student knows that the sun is of average size, mass, absolute brightness, and temperature as compared to other stars.	K	2	I
The student knows that the North Star (Polaris) is important in present celestial navigation due to the fact that it is almost directly above the North Pole and doesn't appear to move relative to the earth's motion.	K	2	I
The student knows that the North Star (Polaris), the last star in the handle of the Little Dipper, can be located by using the two pointer stars in the pan of the Big Dipper by extending a straight line out of the pan in line with the pointer stars and extending this line about five of these units (distance between two pointer stars).	K	2	P

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Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.326 Stars (Cont.)			
The student is able to locate the North Star (Polaris) using the pointer stars in the Big Dipper as reference points.	P	1b, 1f	P
The student knows that, not counting our sun, certain stars are of special significance: Polaris and Vega for navigation, Sirius for being the brightest star, and Alpha Centauri and Proxima Centauri for being the closest stars.	K	2	I
The student knows that stars appear to twinkle because the light coming from them is refracted by our atmosphere.	K	2	I
The student knows that stars are composed mainly of hydrogen gas (90%) and that the combination of hydrogen and helium account for 98% of the mass of most stars.	K	2	U
The student knows that the H-R diagram is a graph that shows the relationship between temperature, color, mass, and brightness of most stars.	K	2	U

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Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.327 Astronomical Measurement and Instruments			
The student knows the meaning of the terms right ascension and declination as related to the describing of the location of objects in the sky.	K	2	U
The student is able to use right ascension and declination in both locating and describing the location of objects in the sky.	P	1b, 1f	U
The student knows the meaning of the following units of measurement: astronomical unit, light year and parsec.	K	2	U
The student is able to compare in miles and express (using scientific notation) the distances represented by an astronomical unit, a light year, and a parsec.	P	1b, 1f	U
The student knows that the spectroscope is used to find the chemical composition of those objects in space which give off their own light.	K	2	U
The student is able to analyze light given off by objects through the use of a spectroscope and relate the light (in general terms) to the chemical composition of the object.	P	1m, 1f, 1d	H
The student knows that our conventional directions used in the earth frame of reference (up, down, north, south, east, west) do not apply in space, but that direction is described in terms of distance and angle of points in space.	K	2	I

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2 Physical Science
2.3 Earth and Space Science
2.32 Stellar System

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.327 Astronomical Measurement and Instruments (Cont.)			
The student knows that parallax is the apparent shift in the background when looking at an object from different positions and can be used to find distance in the solar system and to nearby stars. (Trigonometry is used when you know the base line and base line angles.)	K	2	H
The student knows that light varies inversely with the distance squared and this relationship is used to find distances in the universe. (Information needed is the apparent and the absolute brightness.)	K	2	H
The student knows that apparent size is due to distance. For example the sun, a medium-size star, looks larger because it is closer.	K	2	I
The student knows that triangulation and trigonometry can be used to find distances on the earth and in the solar system. (Measure the angles between the base line and the object and measure the base line.)	K	2	H
The student knows that there is a difference between a reflecting and refracting telescope in terms of their lens system.	K	2	U
The student is able to discriminate between a reflecting and refracting telescope in terms of the lens system or method of gathering light.	P	1f, 1m	U

2 Physical Science
2.3 Earth and Space Science
2.32 Stellar System

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.328 Astronomers The student knows the contributions of the following people in the field of astronomy: Pythagoras, Archimedes, Hipparchus, Anaxagoras, Aristotle, Eratosthenes, Galileo, Isaac Newton, William Herschel, Tycho Brahe, Copernicus, Kepler, Bruno, Huygens, George Hale, Ptolemy, Joseph von Fraunhofer, Michael Faraday, Kirchhoff, Foucault, Albert Einstein.	K	2	H

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2 Physical Science
2.3 Earth and Space Science
2.32 Stellar System

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.329 Dynamics (forces and motion and time)			
The student knows that mass-energy is conserved and that the quantity of mass-energy in the universe never changes even though its distribution does change.	K	2	U
The student knows that in space travel the fourth dimension, time, is a factor to be considered in directional calculations.	K	2	U

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2 Physical Science
2.3 Earth and Space Science
2.33 Meteorology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.331 Structure of Atmosphere			
The student knows that air is matter, i.e., it occupies space and has weight.	K	2	P
The student knows that air exerts pressure. This pressure is about 15 pounds per square inch at sea level due to the weight of the air above. At an altitude of 3½ miles the pressure is about 7½ pounds per square inch.	K	2	I
The student knows that air is held to the earth by the pull of gravity; this layer of air is called our atmosphere and it holds varying amounts of water vapor and dust particles.	K	2	P
The student knows the causes of different optical effects resulting from light passing through the atmosphere--red sunsets and sunrises, blue sky, rainbows, rings (halos and coronas) around the sun and moon, crepuscular rays, and mirages.	K	2	H
The student knows that long wave lengths from the sun penetrate the earth's atmosphere, strike the ground and are radiated as still longer waves which are trapped by our atmosphere, thereby helping to regulate our temperature. This is called "greenhouse effect."	K	2	U
The student knows that the sun only apparently disappears during solar eclipses, when clouds cover the sky, and at night.	K	2	P
The student knows the function and use of mercurial and aneroid barometers, barographs, and altimeters in relationship to measuring air pressure.	K	2	U

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2 Physical Science
2.3 Earth and Space Science
2.33 Meteorology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.331 Structure of Atmosphere (Cont.)			
The student is able to measure air pressure through the use of mercurial and aneroid barometers, barographs, and altimeters.	P	1f, 1m	U
The student knows that air pressure decreases with altitude, (e.g., at an altitude of 3½ miles the pressure is about half that of sea level. Moist air is appreciably lighter than dry air.)	K	2	U
The student is able to measure air pressure by setting and reading an altimeter.	P	1m	U
The student knows that air is a mixture of the following gases: nitrogen, 78.03%; oxygen, 20.99%; argon, .9323%; carbon dioxide; neon; helium; krypton; xenon; hydrogen; methane; and nitrous oxide. Nitrogen and oxygen comprise about 99% of the total volume of gases in the air, and argon almost 1%. Remainder less than .05%.	K	2	U
The student knows that air is a mixture of gases with nitrogen and oxygen being the main ingredients in the mixture.	K	2	P
The student knows that the atmosphere is divided into temperature zones at different elevations called the troposphere, stratosphere, mesosphere, and thermosphere.	K	2	I
The student knows that there are designated layers of the atmosphere called the ozone layer, chemosphere, and ionosphere based on the types of radiation from the sun which they each absorb.	K	2	H

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2 Physical Science
2.3 Earth and Space Science
2.33 Meteorology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.332 Heating and Cooling			
The student knows that warm air rises and cold air sinks because warm air expands due to increased motion of the molecules and is therefore less dense (lighter) than surrounding cold air.	K	2	U
The student is able to explain vertical air movements in terms of temperature, pressure, and density.	P	1b, 1f, 1i	U
The student knows that the greater the difference in temperature of the air the faster cold air replaces rising hot air. This accounts for the differing force and velocity of winds.	K	2	I
The student knows that the temperature of ascending dry air lowers about 5.5°F. per 1,000 feet because of expansion due to lowering pressure. This is called the adiabatic lapse rate. The air will stop ascending as soon as it reaches a point where it has the same temperature as the surrounding air. This is possible because the adiabatic rate is nearly twice the rate of average decrease in temperature with increase in altitude. It won't ascend at all if air above is warmer than air at surface. This is called a temperature inversion and fog and high pollution index are associated with it.	K	2	H
The student knows that the original source of energy causing ocean waves, currents, wind, and weather is solar energy. Land and water absorb and retain heat at different rates which accounts for the differences in temperature.	K	2	I

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2 Physical Science
2.3 Earth and Space Science
2.33 Meteorology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.332 Heating and Cooling (Cont.)			
The student knows that unequal heating of the earth's surface (and consequently the air above it) is due to the angle that the sun's rays strike the earth, the nature of the earth's surface material (color, texture, phases of matter), and atmospheric conditions (amount of fog, smog, or cloud cover).	K	2	U
The student knows the extent of, and causes of, average or typical diurnal (daily) and nocturnal (nightly) temperature changes in his own area. He knows that dry, clear areas heat up more, and cool off more, than moist, cloudy areas.	K	2	U
The student knows the difference between radiation, conduction, convection, and advection in terms of heat energy transfer.	K	2	H
The student knows that our body temperature (and related human comfort) is affected by different types of clothing as to color, closeness of weave, absorption properties, loose fitting, and insulating properties.	K	2	P
The student is able to relate body temperature and comfort to his selection of appropriate clothing, i.e., color, closeness of weave, absorption properties, looseness of fit, and insulating properties.	P	1b, 1f	I

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2 Physical Science
2.3 Earth and Space Science
2.33 Meteorology
2.333 Moisture

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3331 Humidity			
The student knows that relative humidity and dew point can be measured through the use of a wet and dry bulb thermometer (sling psychrometer) and a standard conversion table. The dry bulb reading and difference between dry bulb and wet bulb reading are used on the table.	K	2	I
The student is able to use wet bulb and dry bulb readings (from a sling psychrometer) and a standard conversion table to determine the relative humidity and the dew point. (Dew point can also be found directly by stirring an ice water mixture and noting the temperature at which condensation first appears on the container.)	P	1b, 1f, 1m	I
2.3332 Water Cycle			
The student knows that water evaporates into the air as a gas called water vapor. As water vapor is cooled it condenses to form clouds and comes back to earth as rain, snow, sleet, or hail depending on the temperature. This is known as the "water cycle."	K	2	I
The student is able to demonstrate the relationship of heating and cooling to the water cycle.	P	1f, 1i	I
The student knows that the rate of evaporation is dependent upon temperature and humidity. The higher the temperature and the lower the humidity the faster the evaporation.	K	2	U

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2 Physical Science
2.3 Earth and Space Science
2.33 Meteorology
2.333 Moisture

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3332 Water Cycle (Cont.)			
The student knows that the evaporation of moisture takes heat away from a body. The drier the air (lower relative humidity) and the greater the motion of the air (continually bringing in new dry air) the greater the rate of evaporation, and thus, the more cooling that takes place.	K	2	U
2.3333 Clouds and Fog			
The student knows that clouds (called fog when at the surface) occur when water vapor cools and condenses on particles in the air.	K	2	I
The student knows the different types of clouds as to shape and altitude--cumulus, stratus, cirrus, and nimbus--and the weather conditions associated with each.	K	2	U
The student is able to classify clouds based upon their shape and altitude into three general groups--cumulus, stratus, and cirrus.	P	1f	U
2.3334 Dew and Frost			
The student knows that dew and frost occur when water vapor in the air condenses on cold objects. If the temperature is above freezing (32°F.), dew forms. If the temperature is below freezing (32°F.), frost forms.	K	2	I

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2 Physical Science
2.3 Earth and Space Science
2.33 Meteorology
2.333 Moisture

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3335 Precipitation The student knows how rain, freezing rain, sleet, hail, and snow are formed in terms of temperature, relative humidity (dew point), air turbulance, and condensation nuclei.	K	2	U

2 Physical Science
2.3 Earth and Space Science
2.33 Meteorology
2.334 Storms

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3341 Air Masses and Fronts			
The student knows why cloudiness and storms are associated with low pressure. When warm, moist air rises it cools, the water vapor condenses to form clouds, and then may fall as precipitation.	K	2	U
The student knows the distinction between warm fronts and cold fronts, stationary fronts and occluded fronts, and knows the weather conditions associated with each.	K	2	U
The student knows that air masses are classified according to the temperature and humidity of their origin. (The temperature classifications are: Arctic, Antarctic, Polar, Tropical, and Equatorial. The humidity classifications are: Maritime and Continental.)	K	2	U
2.3342 Violent Storms			
The student knows the principal characteristics, causes, destructive potential, and precautions taken against as related to hurricanes, cyclones, tornadoes, typhoons, monsoon winds, and thunderstorms.	K	2	I
The student knows that lightning is a result of negative electrical charges building up in storm clouds. Thunder is the sound produced by expanding air caused during the electrical discharge.	K	2	P

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2 Physical Science
2.3 Earth and Space Science
2.33 Meteorology
2.334 Storms

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3342 Violent Storms (Cont.)			
The student is able to secure information to support the theory he chooses to accept as to the cause of lightning (how the differences in electrical charges are built up).	P	1c	U
The student knows that the thunder we hear is the shock wave sent out by the lightning stroke whose great heat causes a sudden expansion of air along the path of the stroke.	K	2	P
The student knows that lightning often strikes the tallest object in an area. Therefore, during a lightning storm a person should not position himself near a tall object unless it is properly grounded.	K	2	P

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2 Physical Science
2.3 Earth and Space Science
2.33 Meteorology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.335 Winds			
The student knows that air moves constantly from places of greater pressures (called "highs") to places of lesser pressure (called "lows") because places of lesser pressure are pockets of warm, rising air.	K	2	I
The student is able to explain horizontal air movement (wind) in terms of temperature and pressure differences.	P	1b, 1f, 1i	U
The student knows that rising and falling air currents (winds) are due to unequal heating of the earth's surface. (The earth heats the air unequally. The warmer air rises. The colder air sinks and flows in to replace warm air.)	K	2	I
The student knows ways in which winds are helpful to man and ways they are harmful to man.	K	2	P
The student knows that the rotation of the earth causes winds to veer to the right in the northern hemisphere and to the left in the southern hemisphere. This is known as the Coriolis Force.	K	2	I
The student knows that in the U. S. air masses generally move from west to east due to the direction of rotation of the earth. Within these air masses winds blow clockwise out of a high pressure area and counterclockwise into a low pressure area (see Coriolis Force).	K	2	U
The student knows the names given to different ranges of wind velocities according to the Beaufort Scale and the observable description of each classification.	K	1b, 2	I

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2 Physical Science
2.3 Earth and Space Science
2.33 Meteorology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.335 Winds (Cont.)			
The student knows the function and use of weather balloons, wind vanes, wind socks, and anemometers in relationship to measurement of wind speed and direction.	K	2	I
The student is able to measure wind speed and direction through the use of weather balloons, wind vanes, wind socks, and anemometers.	P	1f, 1m	I
The student knows that sea breezes (wind from sea to land) result from greater heating of the air above land during daylight hours when the air over land and sea is in stable equilibrium. The land breeze is essentially the reverse of the sea breeze as the land cools more rapidly at night.	K	2	U
The student knows that valley breezes (wind up the slope of a mountain) result from greater heating of the valley floor during the day. Mountain breezes are the reverse that occur at night as the valley floor cools.	K	2	U
The student knows that more rain falls on the windward side of a mountain (side wind blows from) than the leeward side because the moisture in the air condenses as the air rises (and cools) to go over the mountain.	K	2	I
The student knows that pressure gradient is the rate of change of barometric pressure from a low to a high and is shown on a weather map by the relative closeness of the isobars. The steeper the pressure gradient (closer isobars) the stronger the wind.	K	2	I

2 Physical Science
2.3 Earth and Space Science
2.33 Meteorology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.335 Winds (Cont.)			
The student knows that the jet stream and upper atmosphere disturbances affect our weather.	K	2	I
The student knows that the jet stream is a powerful but narrow stream of fast moving air associated with the westerlies of the upper troposphere.	K	2	U

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2 Physical Science
2.3 Earth and Space Science
2.33 Meteorology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.336 Weather Forecasting			
The student knows how to record daily weather conditions at specified times (e.g., temperature, air pressure, wind speed and direction, cloud type and cover, relative humidity, dew point, type and amount of precipitation during the past 24 hours). (Also, maximum and minimum temperature during the past 24 hours if the instruments are available.)	K	1d, 2	I
The student is able to map weather conditions using standard symbols (e.g., isobars, isotherms, fronts, type and amount of precipitation, wind speed and direction, local temperature and dew point, cloud type, height and amount of cloud cover, visibility, local air pressure and whether it is increasing or decreasing.	P	1d, 2	U
The student knows the function and use of a rain gauge, hygrometer, thermometer, wet and dry bulb thermometer, thermograph, sling psychrometer, maximum-minimum thermometer, ceilometer, ceiling balloon, theodolite, and radiosonde in terms of measurement of weather conditions. (Knows both Fahrenheit and Centigrade temperature scales.)	K	2	U
The student is able to measure weather conditions through the use of instruments (e.g., rain gauge, hygrometer, wet and dry bulb thermometers, thermograph, sling psychrometer, maximum-minimum thermometer, ceilometer, ceiling balloon, theodolite, and radiosonde).	P	1f, 1m	U

2 Physical Science
2.3 Earth and Space Science
2.33 Meteorology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.336 Weather Forecasting (Cont.)			
The student knows that the identification of large air masses and the determination of their movement and changing conditions within them depend upon the collection and reporting of data from weather stations, weather ships, and satellites throughout the world.	K	2	I
The student is able to predict changes in the local weather from observations of current weather conditions, readings from local weather instruments, and information from the U. S. Weather Bureau about air masses moving toward his locality.	P	1h	I

2 Physical Science
2.3 Earth and Space Science
2.33 Meteorology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.337 Climate			
The student knows that weather is the moment to moment change in atmospheric conditions and that climate is the total of all weather that has occurred at a given place. Climate reporting involves all kinds of averages of weather conditions, the extremes, and total precipitation for specified periods of time.	K	2	P
The student is able to determine the probable climate of an area given the latitude, size of land mass, land surface features, elevation, prevailing winds, and distance from bodies of water.	P	1c, 1f	U
The student knows why the seasonal variations (fall, winter, spring, summer) of climate occur only in the temperate regions of the earth.	K	2	P
The student knows the climatic conditions existing at the time of equinoxes and solstices in the temperate, torrid, and frigid zones as related to the angle of the sun's rays, length of day, and typical weather conditions.	K	2	U

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2 Physical Science
2.3 Earth and Space Science
2.34 Physical Geology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.341 Maps The student knows how maps are used in the study of geology. Some examples are: stereo maps, topographical maps, plastic relief maps, and geological maps.	K	2	I

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2 Physical Science
2.3 Earth and Space Science
2.34 Physical Geology
2.343 Structure of Earth

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3431 Internal Layers			
The student knows the names of the main layers of the earth (e.g., crust, mantle, outer core, and inner core) and the state of matter and relative thickness of each layer.	K	2	I
The student knows that seismic readings are used to determine the state of matter and relative thickness of the earth's crust.	K	2	I
The student knows that the mantle and inner core of the earth are solid-like and the outer core is liquid-like.	K	2	I
The student knows how seismology uses explosives and the dropping of weights to secure information about the crust of the earth.	K	2	U
The student knows that there is a relationship between the velocity of earthquake waves and the matter through which they travel. This information is used to determine the state of matter and relative thickness of the earth's interior and crust.	K	2	U
2.3432 Land Forms			
The student knows the basic facts and assumptions underlying the following theories on the formation of the continents: continental drift, contraction-expansion, convection.	K	2	H

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2 Physical Science
2.3 Earth and Space Science
2.34 Physical Geology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.342 Size and Shape of Earth The student knows that the gravimeter, acceleration of a falling body, pendulum, and satellite orbits are used to measure the earth's gravitational pull.	K	2	H

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2 Physical Science
2.3 Earth and Space Science
2.34 Physical Geology
2.343 Structure of Earth

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3432 Land Forms (Cont.)			
The student is able to secure information that tends to validate or refute the following theories on continent formation: continental drift, contraction-expansion, and convection.	P	4, 1f	H
The student knows that the zones of greatest extrusive volcanic and earthquake activity on earth are located in two long chains of mountains: the ring around the Pacific Ocean and the chain of volcanoes running from the Azores, east across Europe and into Asia.	K	2	I
The student knows the names and general characteristics of the basic land forms (e.g., valleys, plains, plateaus, and mountains).	K	2	I
The student knows the shape and physical characteristics of the basic land features formed by erosion (e.g., hogbacks, domes, mesas, needles, goblins, gullies, canyons, shore lines, sand dunes, V-shaped valleys, river channels).	K	2	U
The student knows how erosion forms hogbacks, domes, mesas, needles, goblins, gullies, canyons, shore lines, sand dunes, V-shaped valleys, and river channels.	K	2	U
The student knows the names and characteristics of the basic land features caused by glaciers (e.g., cirques, U-shaped valleys and lakes, lateral and terminal moraines, tills and fiords.	K	2	U

2 Physical Science
2.3 Earth and Space Science
2.34 Physical Geology
2.343 Structure of Earth

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3432 Land Forms (Cont.)			
The student knows that glaciers form land features by deposition (moraines, tills, eskers, kames, erratics) and by erosion (cirques, U-shaped valleys and lakes, and aretes).	K	2	U
The student knows the names, locations, and major characteristics of the nine geomorphic divisions of Oregon (e.g., Cascade Range, Coast Range, Blue Mountains, Willamette Valley, Deschutes-Umatilla plateau, Klamath Mountains, Basin Range, Owyhee uplands, High Lava Plains).	K	2	U
2.3433 Water			
The student knows ways that moving water works for man.	K	2	P
The student knows that ground water dissolves limestone to form underground caves, stalagmites, and stalactites.	K	2	I
The student knows the meanings of the terms "simple well" and "artesian well" as they relate to the water table.	K	2	U
The student knows that the formation of swamps, lakes, brooks, and springs, is dependent on the land surface being lower than the top of the water table.	K	2	I
The student knows the difference between hard and soft water in terms of mineral content.	K	2	I
The student knows how to measure the hardness of water.	K	2	H

2 Physical Science
2.3 Earth and Space Science
2.34 Physical Geology
2.343 Structure of Earth

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3433 Water (Cont.)			
The student is able to measure the hardness of water.	P	2	H
The student knows how the following factors affect the oxygen content of water: air, green plants, animals and decaying matter, agitation, and temperature.	K	2	I
The student knows that a watershed is the drainage region that supplies water to a lake or river.	K	2	H

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2 Physical Science
2.3 Earth and Space Science
2.34 Physical Geology
2.344 Earthquakes and Volcanoes

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3441 Earthquakes			
The student knows that faults occur when stresses which develop within the earth become too great for the crust to bear.	K	2	I
The student knows that nearly all earthquakes originate in fractures of the solid rock of the earth's crust along one zone or another.	K	2	I
The student knows that a fault is a break or fracture in the earth's crust along which movement of the rocks on either side has occurred.	K	2	I
The student knows that earthquakes are caused by faults and shifting masses of earth.	K	2	I
The student knows how suboceanic faulting creates tidal waves.	K	2	I
The student knows the way in which a seismograph measures and records the intensity of an earthquake.	K	2	U
The student knows that seismographs are used to locate the epicenter of an earthquake.	K	2	I
The student knows how seismographs are used to determine the epicenter of an earthquake.	K	2	U
The student knows the meaning of the following terms as they relate to earthquake activity: elastic rebound, focus, epicenter, seismology, Mercalli scale, Richter scale, Cirum-Pacific Belt, Mediterranean and trans-Asiatic region.	K	2	U

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2 Physical Science
2.3 Earth and Space Science
2.34 Physical Geology
2.344 Earthquakes and Volcanoes

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3442 Volcanoes			
The student knows that intrusive rocks are those that solidify beneath the earth's crust.	K	2	I
The student knows the following terms and their meanings as they relate to intrusive volcanic activity: batholith, dike, granite, syenite, diorite, gabbro, sill, neck, stock, pegmatite, and peridotite.	K	2	U
The student knows the following terms and their meanings as they relate to extrusive volcanic activity: lava, volcanic dust, volcanic cinders, volcanic ash, volcanic bombs, volcanic blocks, craters, calderas, explosive eruptions, quiet eruptions, shield volcanoes, cinder cones, composite volcanoes, active volcanoes, dormant volcanoes, extinct volcanoes, rhyolite, obsidian, pumice, andesite, and basalt.	K	2	U

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2 Physical Science
2.3 Earth and Space Science
2.34 Physical Geology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.345 Diastrophism			
The student knows that diastrophism is the process that thrusts the earth's crust up and down along fractures or faults and squeezes the surface into folded layers.	K	2	U
The student knows the meanings of the following terms as they relate to folding and faulting of the earth's crust: fracturing; anticline; syncline; monocline; dip; strike; hanging wall; footwall; normal, reverse, and thrust faults; horst; and graben.	K	2	U

Science

2 Physical Science
2.3 Earth and Space Science
2.34 Physical Geology
2.346 Erosion and Deposition

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3461 Water			
The student knows the following terms and their meanings: oxbows, meanders, waterfalls, alluvial fans, flood plains, and terraces.	K	2	U
The student knows how running water forms oxbows, meanders, waterfalls, alluvial fans, flood plains, and terraces.	K	2	I
The student knows how the following erosive agents change the earth's surface: moving water, moving air, moving ice, and falling rocks (gravity).	K	2	I
2.3462 Wind			
The student knows that moving air as well as the following erosive agents change the earth's surface: moving water, moving ice and falling rocks (gravity).	K	2	I
2.3463 Glaciers			
The student knows that an iceberg is produced from a glacier and that icebergs carry masses of rock or gravel from their original resting places far out to sea.	K	2	P
2.3464 Deposition			
The student knows that sediment was once living organisms and bits of eroded materials that have been carried and deposited by water.	K	2	I

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2 Physical Science
2.3 Earth and Space Science
2.34 Physical Geology
2.346 Erosion and Deposition

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3464 Deposition (Cont.)			
The student knows that water sorts sediments and that there is a direct relationship between the mass of the particle deposited and the speed of the water.	K	2	I
The student knows that deltas are the result of sediments deposited by a moving stream which slows upon entering a body of standing water.	K	2	I
The student knows that some forms of "mass wasting" are: rock glaciers, land slides, rock falls, mud flows, earth flows, and slumps.	K	2	U

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2 Physical Science
2.3 Earth and Space Science
2.34 Physical Geology
2.347 Rocks and Minerals

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3471 Rocks			
The student knows that extrusive rocks are those that solidify at or above the earth's crust.	K	2	I
The student knows how the rock cycle is used to explain the change of rocks from one kind to another.	K	2	I
The student is able to explain the progression of a given kind of rock through the rock cycle.	P	2	U
The student knows the origin of igneous, sedimentary, and metamorphic rocks.	K	2	I
The student is able to identify a given rock as igneous, sedimentary, or metamorphic.	P	2	U
The student knows that rocks are made up of minerals.	K	2	P
The student knows how to identify rocks on the basis of mineral content and texture.	K	2	I
The student is able to identify rocks on the basis of mineral content and texture.	P	2	U
The student knows that rocks are mixtures which are made up of minerals.	K	2	I
The student knows the kinds of rocks that are found in the major geological land forms in his area.	K	2	I
The student knows that clastic sedimentary rocks are conglomerates, sandstone, and shale.	K	2	U

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2 Physical Science
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2.34 Physical Geology
2.347 Rocks and Minerals

Goal	**Knowledge or Process**	**Program Goal to Which this Goal Contributes**	**Appropriate Initial Instructional Level P/I/U/H**
2.3471 Rocks (Cont.)			
The student knows that organic sedimentary rocks are limestone, diatomaceous, and coal.	K	2	U
The student knows that chemical sedimentary rocks are limestone, dolomite, gypsum, and rock salt.	K	2	U
The student is able to identify specimens of clastic, chemical and organic sedimentary rocks.	P	2	U
The student knows that clastic sediments are classified and named according to size: boulders, cobbles, pebbles, granules, sand, silt, and clay.	K	2	I
The student is able to identify clastic sediments as boulders, cobbles, pebbles, granules, sand, silt, or clay.	P	2	I
The student knows how specific rocks and minerals in his area are being used commercially (e.g., as building stones, monuments, in road building, cements, concrete, water purifying, abrasives, glass-making, paints, etc.)	K	2	I
The student knows that petroleum and natural gas are found in or above porous sedimentary rock, rich in organic fossils, where folding or faulting have created a trap.	K	2	U
The student knows that in order for petroleum and natural gas deposits to occur the following features must exist: porous, permeable reservoir rock, impervious cap rock, and a trap.	K	2	H

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2 Physical Science
2.3 Earth and Space Science
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2.347 Rocks and Minerals

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3471 Rocks (Cont.)			
The student knows that the size of a crystal in rocks in inversely related to the rate of cooling at the time of crystal formation.	K	2	U
The student knows that metamorphism results in new crystalline structure, the formation of new minerals and/or the coarsening of texture.	K	2	U
The student is able to identify some common metamorphic rocks and their parent rocks: slate, marble, quartzites, schists, gneiss, etc.	P	2	U
2.3472 Minerals			
The student knows the names of the minerals most commonly found in the rocks in his area.	K	2	I
The student is able to associate the specific minerals in his area with the geological land forms in which they occur.	P	2	U
The student knows that petroleum and natural gas are recovered from the earth by drilling into a trap and using existing pressure or by man-induced pressures.	K	2	U
The student knows what elements of economic importance are extracted from the mineral ores in his area.	K	2	I
The student knows the land formations in his area which have a potential for economically important mineral deposits.	K	2	U

2 Physical Science
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2.347 Rocks and Minerals

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3472 Minerals (Cont.)			
The student knows that coal is an organic sedimentary rock consisting of the altered remains of plants.	K	2	I
The student knows that there is a direct relationship between the amount of carbon present in coal and its economic importance.	K	2	I
The student knows the following terms and their use in testing and recognizing selected minerals: color, luster, crystal shape, streak, fracture, cleavage, hardness, specific gravity, magnetism, fluorescence, triboluminescence, phosphorescence, double refraction, acid test, flame test, radioactivity, bead test, taste, solubility.	K	2	U
The student is able to use the following in testing and recognizing selected minerals: color, luster, crystal shape, streak, fracture, cleavage, hardness, specific gravity, magnetism, triboluminescence, fluorescence, phosphorescence, double refraction, acid test, radioactivity, flame test, bead test, taste, solubility.	P	2	U
The student knows that, given the amount of known mineral reserves and the present rate of consumption, it is possible to calculate how long our mineral reserves will last.	K	2	H

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2 Physical Science
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2.34 Physical Geology
2.348 Soil

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3481 Formation			
The student knows how freezing water, chemicals, water, plant growth and decay, temperature changes, and animal activity change rocks to smaller rocks and eventually soil.	K	2	I
The student knows that soil is made of weathered rock and organic material.	K	2	P
The student knows that soil has different acid content (pH).	K	2	I
The student is able to measure the pH of soil.	P	2	U
The student knows that the pH (acidity-alkalinity) of soil is related to the kinds of plant life growing there.	K	2	I
The student knows the difference between topsoil, subsoil, and bedrock.	K	2	I
The student knows how the darker color and looser texture of topsoil (as compared with subsoil) is related to the presence of decayed plant and animal matter (humus).	K	2	P
The student knows how soil porosity, water retention and permeability are related to soil particle size.	K	2	I
2.3482 Type			
The student knows that topsoil is needed for growing the plants necessary for the survival of man and other animals.	K	2	P

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2.348 Soil

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3482 Type (Cont.)			
The student knows the different kinds of soil (e.g., clay, loam, silt, sandy, etc.)	K	2	I
The student knows that different soils dry out at different rates; some soils hold moisture (clay).	K	2	I
The student knows how the amount of moisture in the soil is related to the rate of decay and formation of humus.	K	2	I
The student knows that the level of water in the soil depends on the amount of precipitation; the factors that remove water from the soil--evaporation, capillary action, and transpiration from plants; and the type of soil.	K	2	I
The student knows that the type of soil in any region is dependent upon the interrelationship of parent material, topography or relief, time, climate, and biological acitivity.	K	2	I
The student knows the kinds of plants that grow in soil of certain pH (acidity-alkalinity).	K	2	I

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2 Physical Science
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2.34 Physical Geology
2.349 Conservation

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3491 Soil			
The student knows how plant roots, plant decay, and animal activity make fertile topsoil (e.g., Roots hold water. Roots and animal activity keep soil loose. Roots and stems keep soil from washing and blowing. Plant and animal decay put minerals back into the soil. Plants grow and break up rock.).	K	2	I
The student knows that recycling means returning for further treatment and use.	K	2	P
The student knows that conservation means wise use of our natural resources.	K	2	P
The student knows the important men who have contributed to the concept of conservation of natural resources in the United States.	K	2	U
The student knows that water and wind are the main forces that erode the soil.	K	2	I
The student is able to give examples of the effects of erosive agents at work in his community.	P	2	I
The student knows ways of preventing soil erosion (e.g., having an adequate ground cover of plants to hold the soil, planting trees and shrubs as wind breaks and for root development to hold the soil, contour plowing and planting, strip planting, terracing, rotating crops, careful cultivation, avoidance of overgrazing, etc.).	K	2	I

2 Physical Science
2.3 Earth and Space Science
2.34 Physical Geology
2.349 Conservation

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3491 Soil (Cont.)			
The student knows how the nutrient content of the soil is maintained and/or improved (e.g., fertilization, rotating crops, growing legumes, leaving land fallow, etc.).	K	2	I
The student knows that the erosion of the soil is related to the natural contour of the land, porosity of the soil, texture of the soil, and hardness of the minerals in the soil.	K	2	I
The student knows that land use capability can be determined by collecting these facts about the land: wetness, salinity or alkalinity, climate, slope, erosion, overflow; and these facts about the soil: permeability, water supplying capacity, depth, nutrient supplying capacity, and texture.	K	2	U
The student knows that soil structure is classified by the following types: columnar, prismatic, blocky, platy, granular, and single-grained. The last three are characteristic of topsoil.	K	2	U
The student knows that he can keep records of the types of soil he observes by making soil micromonoliths: cementing* samples of surface soil, subsoil, and parent material on cards; giving pH, depth, color, and texture of each layer, and the location from which samples were taken. *If cementing samples isn't feasible a "soil profile" can be made with color drawings in place of actual soil.	K	1i, 2	I

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2 Physical Science
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2.349 Conservation

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3492 Water			
The student knows the ways in which a watershed region is damaged (e.g., overgrazing, removal of ground cover, strip and open pit mining, etc.).	K	2	I
The student knows the methods of flood control are: a protecting dike or levee; channel deepening, straightening, and widening; spillways and floodways; retarding basins; dams or reservoirs; ground covers.	K	2	I
The student knows how the following methods are used in flood control: protecting dike or levee; channel deepening, straightening, and widening; spillways and floodways, retarding basins; dams or reservoirs, and ground covers.	K	2	U
The student knows that the chief causes of water pollution are: domestic sewage, industrial wastes, fine particles of soil washed from farms, detergents, insecticides, oil spillage, solid wastes, and hot water from atomic reactors.	K	2	I
The student knows the chief causes of excess nitrogen in the water (e.g., excess fertilization of soils, detergents, excess aeration of water due to dams, etc.).	K	2	I
The student knows that the main effects of excess nitrogen in the water are: increased growth of algae and other plants and destruction of fish life.	K	2	I

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2 Physical Science
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2.34 Physical Geology
2.349 Conservation

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3492 Water (Cont.)			
The student knows how excess nitrogen in the water effects the growth of algae and other plants, and how it destroys fish life.	K	2	U
The student knows that there is a direct relationship between the amount of oxygen in the water and the amount of animal life present.	K	2	I
The student knows how to determine the oxygen content, acidity (pH), and living organisms present in the water.	K	2	I
The student knows some methods being used in his area to prevent water pollution and to recycle water.	K	2	I
The student knows the conditions under which irrigation is used and the beneficial results in those areas where irrigation has been important.	K	2	I
The student knows that the estimated volume of flow of a stream can be found by multiplying average velocity of flow, average width, and average depth. To get average velocity, clock an object floating down the center of flow and multiply this by eight. Average width can be found by triangulation if direct measurement is impossible.	K	1d, 1f	U
The student is able to estimate the volume of flow of a stream by multiplying the average velocity of flow, average width, and average depth.	P	1d, 1f	U

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2 Physical Science
2.3 Earth and Space Science
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2.349 Conservation

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3493 Air			
The student knows examples of air pollution in his area and its effects.	K	2	I
The student knows the chief causes of air pollution (e.g., automobile exhaust, domestic and industrial burning of fossil fuels, field burning, industrial wastes, smoking, radioactive wastes, etc.).	K	2	I
The student knows that air can be tested to determine the amount of pollutants present (pollution index).	K	2	P
The student knows how air is tested to determine the amount of pollutants present.	K	2	U
The student knows examples of methods being used in his area to prevent air pollution.	K	2	I
The student knows that the occurrence of a temperature inversion results in increased potential for air pollution.	K	2	U

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2 Physical Science
2.3 Earth and Space Science
2.35 Historical Geology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.351 Theories of Origin			
The student knows that our interpretation of the geological past is based upon observation of current geological change (uniformitarianism).	K	2	I

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2 Physical Science
2.3 Earth and Space Science
2.35 Historical Geology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.352 Dating Methods The student knows that rocks of each geological age bear distinctive types of fossils distinguishable from those of any other and in general the development of life forms (as shown in the fossils) has been from the simple to the complex.	K	2	U

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2 Physical Science
2.3 Earth and Space Science
2.35 Historical Geology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.353 Time Periods			
The student knows that geological history of the earth is divided into eras of geologic time (e.g., Cenozoic, Mesozoic, Paleozoic, Pre-Cambrian or Cryptoic).	K	2	I
The student knows that the eras of geologic time were determined by the dominant life forms thought to exist at that time (e.g., Paleozoic--invertebrates, Mesozoic--reptiles, Cenozoic--mammals, etc.).	K	2	I
The student knows the major geological events that have taken place in his area and their proper place in the sequence of geological time.	K	2	U
The student is able to give examples of major geological events that occurred in his area and place them in the proper sequence in geological time.	P	1b, 1f	U
The student knows the major geological formations in his area which indicate that climatic changes have taken place (e.g., fossils, glaciation evidence, etc.).	K	2	U
The student is able to give examples of geological formations in his area which indicate changes in climate (e.g., fossils, evidence of glaciation, etc.).	P	1f, 1d	U

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2 Physical Science
2.3 Earth and Space Science
2.35 Historical Geology
2.354 Paleontology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3541 Fossils			
The student knows that the bodies of organisms buried in sediment may be preserved as fossils.	K	2	P
The student knows that fossils are used to tell which layer of sedimentary rock was made (laid down) first (superposition).	K	2	P
The student knows how the different kinds of fossils were formed (e.g., animals preserved in ice, mineralized fossils, molds and casts, borings of worms and mollusks, gastroliths, coprolites, artifacts, etc.).	K	1b, 2	U
The student knows the meaning of the following terms associated with fossils: index fossil, extinct, adaptation, prehistoric, paleontology.	K	2	U
The student knows that geologists learn about the history of the earth from the study of fossils, exposed strata, drill cores of land and ice, rock and mineral formations, and displacements.	K	2	U
2.3542 Extinct Animals			
The student knows that there are no satisfactory theories as to why some animals and plants became extinct, but there is speculation that lack of adaptation to a changing environment in terms of climate, food sources, and habitats may have been factors.	K	2	U

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2 Physical Science
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2.35 Historical Geology
2.354 Paleontology

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3542 Extinct Animals (Cont.)			
The student knows that dinosaurs are an interesting example of an extinct animal because of their ability to adapt to practically every conceivable environment, the abundance of fossil remains, large size, ferocious appearance, and the mystery surrounding the reason for their extinction.	K	2	U
2.3543 Theory of Evolution			
The student knows that the theory of evolution is based in part on the study of fossil records.	K	2	I

2 Physical Science
2.3 Earth and Space Science
2.36 Geochemistry

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.361 Rocks and Minerals			
The student knows that there are large crystal systems in minerals (e.g., isometric, tetragonal, hexagonal, orthorhombic, monoclinic, and triclinic).	K	2	H
The student knows that the shape of crystals in minerals depends on the direction and number of force fields that eminate from each molecule.	K	2	H

2 Physical Science
2.3 Earth and Space Science

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.37 Oceanography The student knows that oceanography is to be defined as the study of the ocean --topography of ocean basins, composition of sea water, shore features, characteristics of currents and tides, characteristics of waves and wave action, temperature, and life forms present.	K	2	I

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2 Physical Science
2.3 Earth and Space Science
2.37 Oceanography

Goal	**Knowledge or Process**	**Program Goal to Which this Goal Contributes**	**Appropriate Initial Instructional Level P/I/U/H**
2.371 Underwater Landscape			
The student knows that the ocean floor has topographical features similar to those on land (e.g., mountains, mountain ranges, plains, trenches, troughs, ridges, atolls, etc.).	K	2	I
The student knows the meaning of the following terms having to do with the ocean's topography: a continental shelf, continental slope, abyssal plain, ridge, trench, submarine canyon, turbidity current, ocean deep, rift, and atoll.	K	1b, 2	U

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2 Physical Science
2.3 Earth and Space Science
2.37 Oceanography

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.372 Currents			
The student knows that life in the ocean is most plentiful where deep ocean currents meet each other and force water from the sea bottom up towards the surface, thus replenishing the nutrients available.	K	2	P
The student knows the definition of the following terms dealing with ocean currents: surface currents, density currents, turbidity, Antarctic intermediate water, North Atlantic deep water, Antarctic bottom water, polar creep, upwelling, and countercurrents.	K	2	I
The student knows the causes of ocean currents (wind, rotation of the earth, land configurations, differences in temperature, and differences in density (salt content), etc.)	K	2	I
The student knows that ocean currents transport large masses of water having specific characteristics and affect climate by their transportation of heat energy.	K	2	P
The student knows that ocean currents are movements of large masses of water while waves are the transfer of energy through water.	K	2	U

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2 Physical Science
2.3 Earth and Space Science
2.37 Oceanography

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.373 Waves			
The student knows the meaning of the following terms having to do with waves and shoreline phenomena: crest, trough, height, wave length, period, whitecap, swell, breaker, undertow, rip current, long shore current, and refraction.	K	1b, 2	U
2.3731 Causes and Characteristics			
The student knows that the main cause of ocean waves is the wind.	K	2	P
The student knows that wave height is dependent upon wind speed, wind direction, and the fetch (distance of open water over which the wind blows).	K	2	I
The student is able to explain the main cause of waves on water (Most waves are caused by wind.).	P	1b, 1d, 1f	I
The student knows that tidal waves (tsunami) can result from suboceanic faulting.	K	2	I
The student knows that an ocean wave breaks when it enters shallow water and that when it breaks the ratio of wave height to water depth is about 3:4.	K	2	I
The student is able to predict where a wave will break knowing the relationship that wave height to water depth at breaking is 3:4, and knowing one of these variables (either wave height or water depth).	P	1d, 1f, 1h	U

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2 Physical Science
2.3 Earth and Space Science
2.37 Oceanography
2.373 Waves

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.3732 Effects on Shorelines			
The student knows the meaning of the following terms having to do with shoreline land forms made by deposition: bay, hood, lagoon, boymouth bar, offshore bar, spit, tombolo, land tied island, barrier beach, sandy beach, shingle beach.	K	1b, 2	U
The student knows the meaning of the following terms having to do with shoreline land forms made by erosion: headland, boy, wave cut cliff, wave cut terrace, sea cave, sea arch, sea cliff, stack.	K	2, 1b	U

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2 Physical Science
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Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.374 Tides			
The student knows that the different tide levels (lower neap tide and higher spring tide) are related to the different positions of the sun and moon in relation to the earth.	K	2	I
The student is able to explain the difference in tide levels (neap tide and spring tide) in terms of the different positions of the sun and moon in relationship to the earth.	P	ld, lf, lh, li	U
The student knows that the moon's tide producing effect varies depending upon whether it is in the perigee or apogee of its eliptical orbit.	K	2	U
The student knows that local tide magnitudes and rhythms are affected by the characteristics of the shoreline feature--the slope of the bottom, the depth of the channel, and the width of the entrance.	K	2	U
The student knows how the knowledge of periodicity of tides is presently used by man in regulating his commercial, recreational, and scientific endeavors relating to the oceans (e.g., fishing, surfing, studying intertidal life zones).	K	2	I
The student knows how the energy of incoming and outgoing tides is being used to generate electricity.	K	2, 3a	U

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2 Physical Science
2.3 Earth and Space Science
2.37 Oceanography

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.375 Minerals			
The student knows that the main source of the ocean's mineral content is the land areas where water has dissolved minerals and streams and rivers have carried this material to the ocean.	K	2	I
The student knows the minerals that are most abundant in the ocean and of chief economic importance (e.g., NaCl, $MgCl_2$, $MgSO_4$, $CaSO_4$, K_2SO_4, etc.).	K	2	U
The student knows that table salt (NaCl), Mg, Br, and I are of economic importance and are extracted from the oceans and from forms of life in the ocean that concentrate these in their bodies.	K	2	U
The student knows that petroleum is being extracted from the ocean basin (continental shelf).	K	2	P

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2 Physical Science
2.3 Earth and Space Science
2.37 Oceanography

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.376 Life The student knows that life in the ocean is concentrated in three main realms (e.g., the sunlit surface waters of the sea, the shallow bottom near the shores, and the open sea just beneath the surface waters).	K	2	I

2 Physical Science
2.3 Earth and Space Science
2.37 Oceanography

Goal	**Knowledge or Process**	**Program Goal to Which this Goal Contributes**	**Appropriate Initial Instructional Level P/I/U/H**
2.377 Effect on Climate			
The student knows that water heats and cools slowly and therefore the oceans and other large bodies of water have a steadying or moderating influence on the temperature of our planet and upon climate in general.	K	2	I
The student is able to generalize concerning the effect of the ocean upon the temperature of our planet and climate in general.	P	1d, 1f	U

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2 Physical Science
2.3 Earth and Space Science
2.37 Oceanography

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
2.378 Instruments and Equipment The student knows the use of the following pieces of oceanographic apparatus: echo sounder, drift bottles, current meter, Nansen bottle, bathy thermograph, dredge, piston corer, tow nets, scuba, bathyscaphe, benthoscope, and mesoscaphe.	K	2, 3a	U

Science

7 Fundamental Scientific Processes
7.1 Acquiring Knowledge
7.11 Observing

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
7.111 Listening			
The student is able to identify sources of common sounds (i.e., car horn, animal sounds, etc.).	P	2	P
The student is able to compare sounds as being alike or different.	P	2	P
The student is able to compare two sounds as to their volume.	P	2	P
The student is able to compare two sounds as to their duration.	P	2	P
The student is able to compare two sounds as to their pitch.	P	2	P
The student is able to order sounds as to volume, pitch, or duration.	P	2	.P
The student is able to compare tonal quality of two sounds of the same volume and pitch.	P	2	P

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7 Fundamental Scientific Processes
7.1 Acquiring Knowledge
7.11 Observing

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
7.112 Feeling (Tactile)			
The student is able to distinguish objects as alike or different using the sense of touch.	P	2	P
The student is able to compare objects as to how they feel to the touch (e.g., hot, cold, soft, hard, smooth, rough, etc.).	P	2	P
The student is able to identify objects using the sense of touch.	P	2	P
The student is able to order objects using the sense of touch (e.g., hot to cold, sharp to dull, etc.).	P	2	P

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7 Fundamental Scientific Processes
7.1 Acquiring Knowledge
7.11 Observing

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
7.113 Smelling			
The student is able to compare odors as being alike or different.	P	2	P
The student is able to distinguish between objects having a strong smell and those not having a strong smell within a class of smells.	P	2	P
The student is able to identify odors on the basis of the generally accepted standard (putrid, fruity, spicy, resinous, flowery, burnt) or using a standard set up by the student(s).	P	2	P
The student is able to order sources of odors according to their intensity within a class of odors.	P	2	P

Science

7 Fundamental Scientific Processes
7.1 Acquiring Knowledge
7.11 Observing

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
7.114 Tasting			
The student is able to compare tastes as being alike or different.	P	2	P
The student is able to distinguish between objects having a strong taste and those having a weak taste within any specific class of tastes.	P	2	P
The student is able to identify common substances using the sense of taste (e.g., salt, sugar, vinegar, etc.).	P	2	P
The student is able to use taste to order solutions as to concentration of solute (e.g., salt or sugar in water).	P	2	P
The student is able to identify tastes in terms of generally accepted standard scale or standard scale set up by the student(s) (e.g., salty, bitter, sweet, sour, spicy).	P	2	P

Science

7 Fundamental Scientific Processes
7.1 Acquiring Knowledge
7.11 Observing

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
7.115 Seeing			
The student is able to distinguish between objects that he can see through and those he cannot.	P	2	P
The student is able to compare objects on the basis of shape.	P	2	P
The student is able to use sight to compare objects as being alike or different on the basis of color, luster (shiny, dull), phase of matter (solid, liquid, gas), shape, size.	P	2	P
The student is able to compare two objects of the same size on the basis of distance (near, far) or compare two objects at the same distance on the basis of their size (large, smaller).	P	2	P
The student is able to order objects on the basis of size.	P	2	P
The student is able to compare a given object with objects that emit their own light and those that do not.	P	2	P
The student is able to order objects of the same size on the basis of distance.	P	2	P
The student is able to compare a given object with objects that reflect light and those that do not.	P	2	P
The student is able to order objects on the basis of luster (shiny to dull).	P	2	P
The student is able to compare objects as to their phases of matter (solid, liquid, gas).	P	2	P

Science

7 Fundamental Scientific Processes
7.1 Acquiring Knowledge
7.11 Observing

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
7.115 Seeing (Cont.)			
The student is able to compare a given object with objects that are transparent, transluscent, and opaque.	P	2	P
The student is able to order objects as to intensity of one given color.	P	2	P
The student is able to see familiar patterns, sets, objects, and/or shapes within a larger setting (i.e., able to see that the letter "P" is in the letter "R," "cat" is in "catch," rectangular shapes in a room or picture).	P	2	P
The student is able to perceive the completed whole image from a partially complete one (e.g., from a picture of part of an animal, the student is able to tell what animal it is).	P	2	P
The student is able to use his imagination to create a completed image from random lines, dots, shapes.	P	2	P
The student is able to see (imagine) the forms of animate objects and other familiar forms in inanimate forms (such as clouds, trees, ink blots, landforms).	P	2	P
The student is able to compare objects on the basis of luster, in terms of the generally accepted standard (scale) (e.g., metallic, non-metallic, vitreous, adamantine, greasy, resinous, silky, pearly, or one devised by the student(s)).	P	2	P

Science

7 Fundamental Scientific Processes
7.1 Acquiring Knowledge
7.11 Observing

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
7.116 Five Senses			
The student is able to identify and/or describe objects using several of the senses.	P	2	P
The student is able to compare the heft (heavy or light) shape (regular or irregular) and size (large or small) of objects using touch and sight from different reference points (look it all over and feel it all over).	P	2	P
The student is able to order objects according to their size or shape or heft using physical action (touch and sight from different reference points).	P	2	P
The student is able to observe and describe behavior in terms of cause (stimulus) and effect (response).	P	2	P
The student is able to distinguish between stimulus (cause) and response (effect) in the observation of living things.	P	2	P
The student is able to distinguish between objects as those that move by themselves and those that do not.	P	2	P
The student is able to distinguish between objects that appear to change and those that do not appear to change in a given amount of time in terms of color, temperature, size, shape, position, odor, texture, sound.	P	2	P
The student is able to compare objects as to changing at the same rate or at different rates.	P	2	P
The student is able to order objects on the basis of the rate of change.	P	2	P

7 Fundamental Scientific Processes
7.1 Acquiring Knowledge
7.11 Observing

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
7.116 Five Senses (Cont.)			
The student is able to classify objects on the basis of how they change, using several of the senses.	P	2	P
The student is able to extend the senses by using instruments to increase his accuracy and/or range of observation.	P	2	P
The student is able to use recording as a fundamental step in scientific observation.	P	2	P
The student is able to differentiate between observations and inferences.	P	2	P
The student is able to use observations upon which to build inferences.	P	2	P
The student is able to observe phenomena using his knowledge of the fact that differences in perception can occur among observers depending upon their biological limits, culture, past experience, and immediate surroundings.	P	2	P

Science

7 Fundamental Scientific Processes
7.2 Organizing Knowledge
7.24 Quantifying (Including Measurement)
7.241 Physical Properties

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
7.2411 Measurable Properties			
The student knows those physical properties of an object which can be measured (e.g., length, volume, area, time, temperature, force, weight, mass, heat, light, etc.).	K	2	P
The student is able to identify those physical properties of an object which can be measured (e.g., length, weight, mass, volume, area, temperature, force).	P	2	P
7.2412 Scale - Property Relationship			
The student knows that the unit commonly used to measure distance is a unit of length, to measure the amount of space is a unit of volume, and to measure the amount of surface is a unit of area.	K	2	P
The student knows the appropriate kinds of units with which to measure the physical properties of objects (e.g., meters to measure length, minutes to measure time, inches to measure a pencil, feet to measure the length of a room, etc.).	K	2	I
The student is able to select appropriate units with which to measure the properties of objects.	P	2	P

Science

7 Fundamental Scientific Processes
7.2 Organizing Knowledge
7.24 Quantifying (Including Measurement)
7.242 Metric System

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
7.2421 Length			
The student knows that the standard unit of length measurement in the metric system is the meter with its divisions and multiples. They include the millimeter, centimeter, kilometer, etc.	K	2	P
The student knows that the metric system units of measure are based on the powers of 10. The power is identified by the prefix used on the unit word: milli = $\frac{1}{1000}$ = 10^{-3} centi = $\frac{1}{100}$ = 10^{-2} deci = $\frac{1}{10}$ = 10^{-1} deka = 10 = 10^{1} hecto = 100 = 10^{2} kilo = 1000 = 10^{3}	K	2	I
The student is able to compare length of objects to determine relative size without the use of measuring instruments (e.g., longer, shorter).	P	2	P
The student is able to order a series of objects according to their relative lengths (e.g., shorter to longer, vice versa).	P	2	P
The student is able to compare the length of objects to determine relative size, using an agreed upon unit of measurement (e.g., count the number of units contained in an object).	P	2	I

Science

7 Fundamental Scientific Processes
7.2 Organizing Knowledge
7.24 Quantifying (Including Measurement)
7.242 Metric System

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
7.2421 Length (Cont.)			
The student is able to compare the length of objects to determine relative size, using universal unit systems (English system, metric system).	P	2	I
The student is able to compare lengths of objects to determine relative size using a variety of instruments (e.g., micrometer, triangulation, microscope scale).	P	2	U
The student is able to use his knowledge of mathematics to measure large distances (e.g., triangulation, trigonometry, similar triangles).	P	2	H
The student knows that the standard units of area measurement used in the metric system are based on the square units of the length measurements. They include the square millimeter, square centimeter, square meter, square kilometer.	K	2	I
The student is able to compare the surfaces of objects to determine the relative areas without the use of measurement instruments.	P	2	P
The student is able to compare surfaces of objects to determine the relative areas using an agreed upon standard (e.g., compare number of tiles in a floor area).	P	2	P
The student is able to compare surfaces of objects to determine the relative areas using universal units of measure (English measure, metric measure, length x width).	P	2	I

7 Fundamental Scientific Processes
7.2 Organizing Knowledge
7.24 Quantifying (Including Measurement)
7.242 Metric System

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
7.2422 Mass (Weight)			
The student knows that the standard unit of mass (weight) measurement in the metric system is the gram with its divisions and multiples. They include the milligram, gram, kilogram, etc.	K	2	H
The student knows that the term "mole" is used to indicate a number of things (much as the terms "dozen" or "gross"), but that it is defined as the molecular weight (in grams) of a substance.	K	2	H
The student knows that one mole of a pure substance has a mass (in grams) equal to the relative molecular mass of the substance.	K	2	H
The student is able to determine the mass of a quantity of pure substance and calculate the number of moles of particles present.	P	2	H
7.2423 Capacity			
The student knows that the standard units of capacity measurement used in the metric system include the milliliter, liter, kiloliter, etc.	K	2	H
The student knows that the standard units of volume measurement used in the metric system are based on the cubic units of the length measurements. They include the cubic millimeter, cubic centimeter, cubic meter, etc.	K	2	U

Science

7 Fundamental Scientific Processes
7.2 Organizing Knowledge
7.24 Quantifying (Including Measurement)
7.242 Metric System

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
7.2423 Capacity (Cont.)			
The student is able to compare the volume of objects to determine the relative size without the use of measuring devices (e.g., large jar contains more volume than small jar).	P	2	P
The student is able to compare the volume of objects to determine relative size using an agreed upon unit standard (e.g., compare the number of containers placed within another container).	P	2	P
The student is able to compare the volume of objects to determine relative size using universal units of measure (e.g., teaspoon, cup, liter).	P	2	I
The student is able to compare the relative volume of objects (solids) by the amount of liquid they displace in a container (e.g., comparing the level of the liquid in a container when rocks of different sizes are immersed in the liquid).	P	2	I
The student is able to compute the volume of objects, using the appropriate units of measure and the correct formula for the volume of the object being measured (e.g., length x width x height; area of base x height).	P	2	U

Science

7 Fundamental Scientific Processes
7.2 Organizing Knowledge
7.24 Quantifying (Including Measurement)
7.243 English System

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
7.2431 Length			
The student knows that the standard units of length measurement used in the English system include the inch, foot, yard, fathom, rod, mile, league, etc.	K	2	P
The student knows that the standard units of area measurement used in the English system are based on the square units of the length measurements. They include the square inch, square foot, square mile, acre, etc.	K	2	I
The student knows that the standard units of volume measurement used in the English system are based on the cubic units of the length measurements. They include the cubic inch, cubic foot, cubic yard, cord, etc.	K	2	U
7.2432 Mass (Weight)			
The student knows that the standard units of mass (weight) measurement used in the English system include the pound, ounce, ton, carat, etc.	K	2	P
7.2433 Capacity			
The student knows that the standard units of capacity measurement used in the English system include the ounce, pint, quart, gallon, etc.	K	2	P

Science

7 Fundamental Scientific Processes
7.2 Organizing Knowledge
7.24 Quantifying (Including Measurement)

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
7.244 Time			
The student knows the universal units of measurement of time (e.g., hours, minutes, nautical units, etc.).	K	2	P
The student is able to compare intervals of time to determine natural units of time (e.g., seasons, day/night, full moon to full moon, etc.).	P	2	P
The student is able to compare intervals of time to determine relative arbitrary (man-made) units of time (hours, minutes, seconds).	P	2	P
The student is able to compare intervals of time using instruments to determine units of time (e.g., clock, tuning fork, metronome, oscilloscope, Cesium clock, etc.).	P	2	I

Science

7 Fundamental Scientific Processes
7.2 Organizing Knowledge
7.24 Quantifying (Including Measurement)

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
7.245 Space			
The student knows that three-dimensional objects are those that have length, width, depth (height) (e.g., cone, cylinder, sphere, cube, pyramid, table, car, etc.).	K	2	P
The student knows that a point is defined to be a location in space. The dot represents the point.	K	2	P
The student knows that a line is defined to be a set of points. (They are either straight or curved.)	K	2	P
The student knows that a symmetrical figure is defined to be one that can be divided by a point, a straight line, or a plane into two figures that are the same size and shape.	K	2	P
The student knows that an angle is defined to be a figure formed by two rays (lines) extended from a common end point.	K	2	P
The student knows that the size of an angle is determined by the number of degrees of rotation (turning) from the initial side to the terminal side of an angle. One unit of measurement is the degree which is $\frac{1}{360}$th part of a complete circle.	K	2	I
The student knows that two-dimensional figures are those that represent an area having length and width (e.g., square, circle, triangle, oval, flat surface, pictures).	K	2	P

Science

7 Fundamental Scientific Processes
7.2 Organizing Knowledge
7.24 Quantifying (Including Measurement)

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
7.246 Heat Measurement The student knows that the units of measurement of heat energy are called calories and joules.	K	2	H

7 Fundamental Scientific Processes
7.2 Organizing Knowledge
7.24 Quantifying (Including Measurement)
7.247 Measurement Devices

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
7.2472 Mass			
The student is able to determine the relative weights of two objects using the sense of touch (e.g., hefting).	P	2	P
The student is able to order a series of objects according to their relative weights by touch (heft) (e.g., heavy to light and vice versa).	P	2	P
The student is able to determine the relative weight of objects using an agreed upon standard unit (e.g., equal arm balance using weights of paper clips as the standard unit).	P	2	P
The student is able to determine the relative weight of objects using instruments with universal standard units of weight (e.g., spring scale).	P	2	I
The student is able to determine the mass of objects through computation (volume x density) where the objects are of regular shape comprised of rectilinear, triangular, or circular surfaces.	P	2	U
The student is able to determine the mass of irregular objects by computing the mass of displaced water in a container of regular shape, comprised of recilinear or circular surfaces.	P	2	U
The student is able to determine weight through computation (volume x density x gravity or force per unit mass).	P	2	U

Science

7 Fundamental Scientific Processes
7.2 Organizing Knowledge
7.24 Quantifying (Including Measurement)
7.247 Measurement Devices

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
7.2474 Temperature			
The student knows that a thermometer is a device used to measure the temperature of liquids and gases, with a universal scale keyed to the freezing and boiling points of water.	K	2	P
The student knows that a Fahrenheit thermometer is one in which the scale is keyed to the freezing point of water at 32° and the boiling point of water at 212° (English system).	K	2	P
The student knows that a Celsius thermometer is one in which the scale is keyed to the freezing point of water at 0° and the boiling point of water at 100° (metric system).	K	2	I
The student knows that the thermocouple and pyrometer are instruments used to measure temperatures of objects.	K	2	H
The student is able to compare objects to determine the relative temperature using the sense of touch (e.g., feel objects near a source of heat and away from a source of heat).	P	2	H
The student is able to determine relative temperature of liquids and gases using a thermometer with a universal scale (Celsius or Fahrenheit thermometer).	P	2	H
The student is able to determine relative temperature of objects using instruments other than a thermometer (thermocouple, pyrometer, etc.).	P	2	H

Science

7 Fundamental Scientific Processes
7.2 Organizing Knowledge
7.24 Quantifying (Including Measurement)
7.247 Measurement Devices

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
7.2479 Force			
The student is able to compare force to determine the relative amount of push or pull using the sense of touch (e.g., push with varying amounts of force on objects).	P	2	P
The student is able to compare force to determine the relative amount of distortion (stretching or bending) caused by the force (e.g., rubber band, ruler, spring).	P	2	I
The student is able to compare force to determine the amount of force required to move an object using an instrument calibrated with a universal scale (e.g., expansion spring scale).	P	2	U
The student is able to compare relative amounts of force to determine the force of gravity (e.g., vary the amounts of mass measured on a spring scale).	P	2	U
The student is able to compute the relative amount of force needed to accelerate an object (e.g., force x mass = acceleration).	P	2	H
The student is able to compute the resultant magnitude and direction of forces acting on the same point using vector diagrams.	P	2	H

Science

7 Fundamental Scientific Processes
7.5 Communicating Knowledge

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
7.51 Description			
The student is able to describe in general terms each of the physical properties of an object (i.e., size, shape, color, temperature, smell, etc.).	P	2	P
The student is able to describe in general terms, physical changes in an object (e.g., color, shape, texture, length, surface area, volume, sound, odor, taste, temperature, etc.).	P	2	P
The student is able to describe characteristics of an object that remain unchanged while other characteristics of that object are changing.	P	2	P
The student is able to describe enough properties of an object to enable another person to identify the object.	P	2	P
The student is able to distinguish between collections of information about an object that are sufficient and those collections that are not sufficient to permit distinction of one object from another.	P	2	I
The student is able to describe a sequence of events involved in a scientific experiment including purpose, material, procedure, observations and conclusions.	P	2	U
The student is able to describe objects or scientific phenomena giving only that information that is necessary or relevant.	P	2	H
The student is able to describe enough properties and steps in assembly of an object to enable another person (when given the proper materials) to construct the object.	P	2	U

Science

7 Fundamental Scientific Processes
7.5 Communicating Knowledge

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
7.51 Description (Cont.)			
The student is able to include a description of his frame of reference (time, place, conditions) in which the observation was made.	P	2	I
The student is able to change his descriptions based on feedback received.	P	2	P
The student is able to use his imagination to describe possible outcomes or causes from a series of events.	P	2	P

Science

7 Funadmental Scientific Processes
7.5 Communicating Knowledge

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
7.52 Symbolic Representation			
The student is able to use visual media as useful tools for communication	P	2	P
The student is able to describe each physical property of an object using approximate quantitative statements (whole numbers and comparisons).	P	2	P
The student is able to describe each physical property of an object using precise, quantitative statements (decimals and fractions).	P	2	I
The student is able to describe physical changes in an object using approximate quantitative statements (using whole numbers and comparisons).	P	2	P
The student is able to describe physical changes in an object using precise quantitative statements (using decimals and fractions).	P	2	I
The student is able to use correct scientific notation and symbols when appropriate.	P	2	U

7 Fundamental Scientific Processes
7.5 Communicating Knowledge

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
7.53 Using Art Media			
The student is able to choose the appropriate media of communication (written, oral, visual).	P	2	I

Science

7 Fundamental Scientific Processes
7.5 Communicating Knowledge

Goal	Knowledge or Process	Program Goal to Which this Goal Contributes	Appropriate Initial Instructional Level P/I/U/H
7.54 Dramatic Acting			
The student is able to act out his feelings about a given object.	P	2	P